Rural Restorative Agritecture: The Case of Grassridge Farmstead in Brant County

by

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Abstract

This thesis investigates the relationship between architecture and agriculture, considering that the two disciplines have frequently been unrelated. The emerging field called Rural Design (Thorbeck 2012, Stringer 2018) shows the potential of the teachings of Restorative Agritecture for reimagining the relation between agriculture and architecture. More particularly this thesis explores restorative principles, and strategies of placemaking, to revive abandoned farmsteads and create a sense of community, considering the case of Grassridge Farmstead, situated in Brant County, Ontario. Combining an investigation on the process of rural design with reflection on a collection of personal experiences, and a careful material culture analysis of the existing site and its artifacts, three strategies were developed – repair, reinvention, restorative – to design a cooperative community farmstead.

Keywords: Rural Design, Restorative Design, Regenerative Design, Agritecture, Farmstead, Rural Architecture, Material Culture, Placemaking.

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Table of Contents

List of Definitions

Agriculture — “It is the science, art, or occupation concerned with cultivating land, raising crops, and feeding, breeding, and raising livestock; farming.”[1]

Agritecture — is the “art, science + practice of incorporating agriculture into the built environment, challenging the industrial scale of agriculture to urban [and rural].”[2]

Alteration — It is an “action to secure the survival or preservation of buildings, cultural artefacts, natural resources, energy or any other thing of acknowledged value for the future. – BS7913:1998, British Standards Institution”[3]

Architecture — “It is a space that comes from a creative imagination of contemplation. The design has influences and inspiration from the environment, society and culture which comes alive as an aesthetically pleasing structure or place when the community interacts with it functional in the past, present and future.”[4]

Conservation — “Modern conservation is principally characterized by the fundamental change of values in contemporary society, a paradigm based on relativity and the new concept of historicity.”[5]

Farmstead— “the heart of the agricultural industry, and the social forces that go with it, is in the huddle of farmhouse, barns, sheds, cribs and windbreaks that lies at the heart of every farm.” [6]

Restorative — “It is pertaining to restoration; tending to the power to restore; to revive; and capable of renewing strength to a place.”[7]

Rural means “relating to, or characteristic of the country, country life, or country people; rustic.”[8]

[1] “Agriculture,” (Dictionary.com LLC., 2019), www.dictionary.com/browse/agriculture.
[2] “Agritecture. What Is Transpiration?” (Definition from Maximum Yield Inc., 2019), www.maximumyield.com/definition/2123/argitecture.
[3] Liliane Wong, *Adaptive reuse Extending the Lives of Building*s, (Berlin, Germany: Birkhauser Berlag GmbH), 2017.
[4] Melissa Snodgrass, My own definition of architecture, 2014.
[5] Liliane Wong, *Adaptive reuse Extending the Lives of Buildings,* Berlin, Germany: Birkhauser Berlag GmbH, 2017.
[6] Mark Fram, *Well Preserved: The Ontario Heritage Foundation’s Manual of Principles and Practice For Architectural Conservation,* (Erin, ON: Boston Mills Press, 2003), 17. It can also be accessed by website at www.heritagetrust.on.ca/en/pages/publications/well-preserved.
[7] “Restorative,” (Dictionary.com LLC., 2019), www.dictionary.com/browse/restorative?s=t
[8] “Rural,” (Dictionary.com LLC., 2019), www.dictionary.com/browse/rural?s=t

List of Figures

Preface

An old farmer was sitting after a long day of moving about with his struggling arthritic hips. He could rejoice for a moment of peace before I came into the room. The old farmer, my grandfather, was seated for dinner at the kitchen table next to the refrigerator with his cane in hand. I stumbled around the centrally located table giggling, with no care in the world. I peeked around the corner of the kitchen table and saw a blurry grin across his face. He reached out with his cane to bring me closer to him for a hug, except I ran the other way laughing in pure joy, playing in the kitchen of the old farmhouse at Grassridge.

Figure 1 Grassridge Farmhouse, 2018.

1.0 Introduction

Function, climate, place and form are principles that summarize our intentions to condense architecture and agriculture into one entity: rural agritecture. Restorative Rural Agritecture comes from self-reflection upon personal experiences and observations of the architectural and agricultural professions. My experience started with my first memory of a place where rural architecture and agriculture occurred with my family at Grassridge Farms. This design thesis proposes an innovative micro farmstead for the cooperative community of today which combines the past narratives of farming with an understanding the dynamic changes occurring in rural areas today. As well, the design will propose to restore the connection between agriculture and architecture in the rural context of an abandoned farmstead to become rural agritecture.

This thesis addresses the following research question: **What is a farmstead and its contemporary architectural relevance, and how can the abandoned farmsteads of Brant County, in particular Grassridge farmstead, be ameliorated by a reimagined relationship between agriculture and architecture to reflect a rural design discipline and placemaking of the farmstead reimagined for communities?**

This rural agritecture design thesis is divided into three major sections with subcategories supporting the abandoned farmstead to become a cooperative micro-farm. The first section looks at the theory and practice of rural design, focusing on the relationship between architecture and agriculture through case studies. The second section explores the history of Grassridge and the material culture of the place using drawings and the making of objects as a research method. Finally, the third section presents the design of the micro-farm.

Grassridge has represented a place to reconnect with my community, family legacies and memories. It has also allowed me the opportunity to reimagine myself as a farmer to consider how Grassridge would be operated with an understanding of rural design and how agriculture and architecture could be interwoven to reconnect in the present, and enable future use.

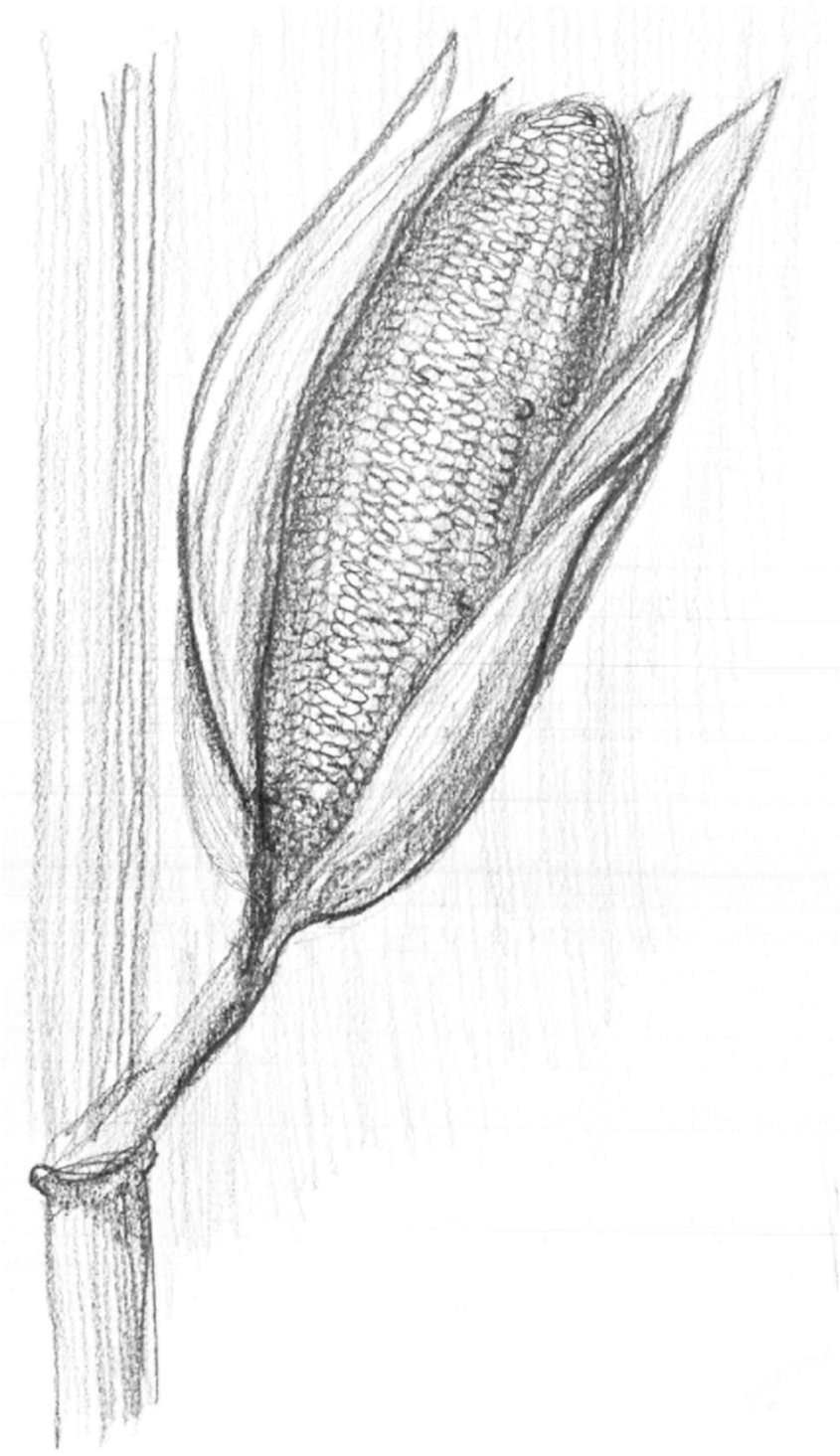
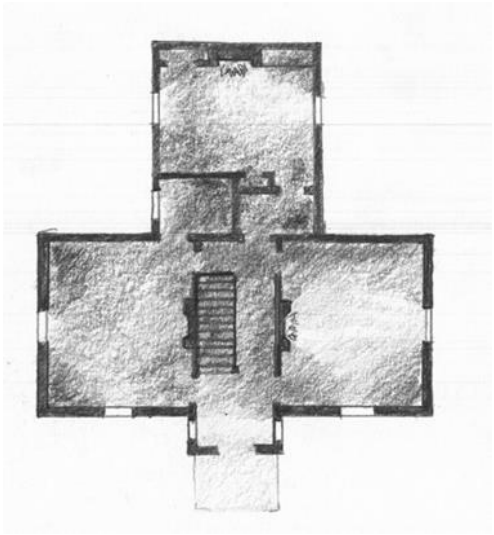


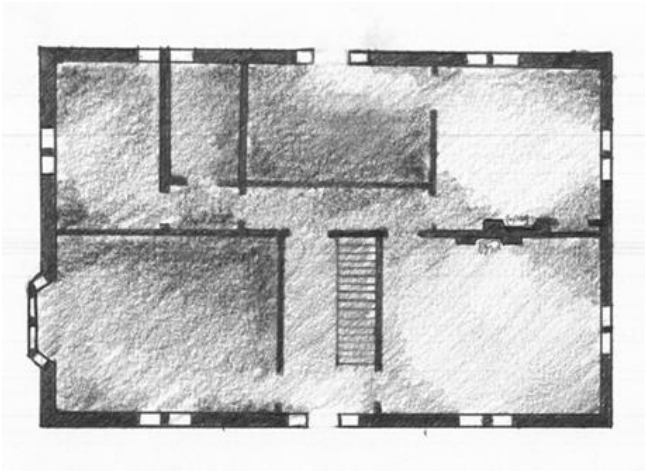
Figure 2 Corn, 2018.

2.0 Relationships between Agriculture and Architecture

In developed countries, there is a common perception that city and rural places are dissociated both spatially and formally, and that the design professions do not have an influence on rural environments. Also, rural environments are rarely recognized as having valuable design qualities. For Thorbeck, *"we often think of cities as designed and the countryside as not, as if the highways, high-rises and housing developments in urban areas and the roads, fields, and farmsteads in rural areas represent fundamentally different environments."*[9] This vision of dissociation between urban and rural environments is still very common and it will take long and persistent efforts to reconsider both environments equitably as far as how they're perceived or designed. Over the last two centuries, some remarkable efforts by designers and scholars have been made to critically engage with rural environments. In the next pages, we will re-examine the contributions of architects and scholars including A.J. Downing, Mark Fram, Wendell Berry, Dewey Thorbeck, Rem Koolhaas. We will review the discussions that occurred at the Rurality Reimagined Conference (2015) and Project for Public Spaces. The relation between agriculture and architecture will also be illustrated through case studies from China, Nova Scotia, Ontario, British Columbia, Washington State, and Netherlands.

[9] Dewey Thorbeck, *Rural Design: A New Design Discipline* (New York, NY: Routledge, 2012), 17.





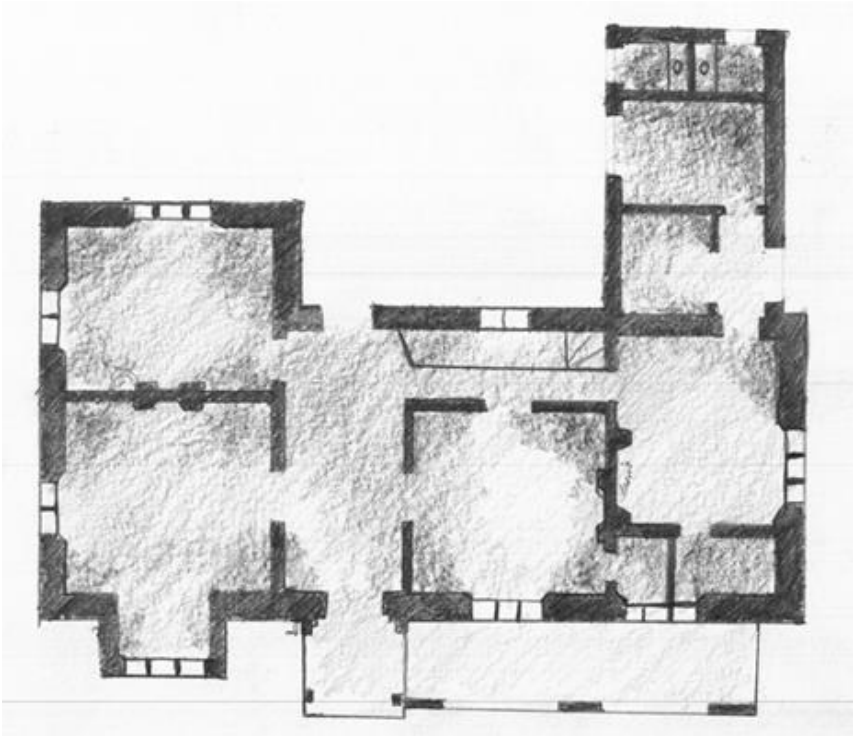


Figure 3 Top Left: Farmhouse floor plan.

Figure 4 Top Right: Cottage floor plan.

Figure 5 Bottom Right: Villa floor plan.

2.1 From Rural Architecture to Rural Design

In 1850, the rural places in North America were generally designed and built in part by the inhabitants of local, rural areas. Farmers, masons, and carpenters took on this role rather than architects who were designing cities. Rural architecture was based on the culture of European settlers. It related to specific traditions connected to their home heritage. Downing, a European, wrote about the rural-urban dichotomy not through social interaction, but through the various architectural typologies of the urban cottages, suburbs and villas compared to the farmhouse. The farmhouse was once *"the most numerous [in]habitation that [met] the eye of the traveler."*[10] Farmhouses were designed by the farmers and the rural communities to create vernacular architecture. During this era *"the whole of the population was devoted to agriculture,"* where*, "twenty persons who live in villas, suburban cottages or townhouses, there are eighty persons living] in farmhouses."*[11] Downing emphasized the stereotypical romance of the countryside to appeal to the European society of the time. In reality the character of the farmhouses, located on farmsteads, was formal at the front to the public eye. However, the design of the farmstead reflected the functionality of the users' lifestyles.

Thus, a farmstead does not only mean the farmhouse and the associated group of outbuildings. In fact, the social interaction is of more importance. For Mark Fram the farmstead is *"the heart of the agricultural industry, and the social forces that go with it, is in the huddle of farmhouse, barns, sheds, cribs and windbreaks that lies at the heart of every farm."*[12] The scholar does not elaborate on what the exact 'social forces' are. These would be the inhabitants and animals which make up the farm and their engagement through cultivation with the agricultural crops, local enterprises and the placemaking on the farmstead. Among these farmsteads various economic changes occur and the prospect of each farmstead is slightly different. Some may prosper in their rural regions. *"But others never prosper, never get beyond the first or second house on account of poor soil or poor management."*[13] Fram goes on to note that *"the big barn is key to this historic assemblage,"*[14] of the rural family farm. When the historic barn is demolished, it causes the decrease in operation of the farmstead and farm impacting the food production that sustains the urban communities.

[10] A.J. Dowling, "Section V," The Architecture of Country Houses (New York, NY: Dover Publications Inc., 1969), 135–138.
[11] A.J. Dowling, "Section V," The Architecture of Country Houses (New York, NY: Dover Publications Inc., 1969), 135–138.
[12] Mark Fram, *Well Preserved: The Ontario Heritage Foundation's Manual of Principles and Practice for Architectural Conservation*, 17.
[13] Ibid*, 17.*
[14] Ibid*, 17.*

Figure 6 Grassridge Family Farm and Farmstead

The family farm once was the standard of living in the rural environment. Wendell Berry described the family farm as part of *"an ethic of practice of the place, not of economic growth, consumption or industrial values."* But as *"a farm small enough to be farmed by a family"* and creates a local enterprise for the family to be both "*the home and the workplace."*[15] However, over the passage of time, *"the family farm is failing because it belongs to the order of values and a kind of life that are failing. We can only find it wonderful, when we put our minds to it, that many people now seem willing to mount an emergency effort to save the family farm*."[16] The family farm has changed to include not just blood relatives, but specialists and farm hands. Thus, it is now a collection of joint ventures or collaborations. Adam Brook describes three zones of teams in agricultural production. First, the *"zone of intimacy"* occurs between 3–10 people where work is done in small teams. Second, the *"zone of trust"* is created between 10–25 people in shifts of operation on the farmstead. Third, when a group reaches 25–50 people, it is the *"zone of cooperation,"* which is the equivalent scale of a cooperative community.[17] If we as aspiring architects are to critically embrace the idea of saving the rural region, we need to observe, listen to the land, its stories, and people to design for a cooperative community.

Since the mid-20th century, the phenomenon of decreasing farms in the rural region has preoccupied planners, engineers, farmers, landscape designers, but rarely architects. Nevertheless, a few engaged architects have worked to develop the field called Rural Design. Dewey Thorbeck explains the main principles of this field:

> *[The] emerging field of rural design, [which puts the urban and rural dichotomy] illusion to rest. It shows how much design has shaped the country as well as the city, and how much design thinking can offer us a way of dealing with the most intractable problems of rural areas.*[18]
>
> *Rural Design is based on a rural land use philosophy that seeks balance between quality of life, economic growth, and preservation of the natural and cultivated landscape. It recognizes the importance of all people, urban as well as rural, of respecting the unique landscape character of where one is living and working.*[19] The framework of rural design was developed to create principles and methodologies to help rural design projects through the following points:
>
> - *Information to policy makers of the spatial, ecological, and ethical impact of various alternatives and the choices they make;*
> - *A methodology to resolve rural land-use issues at a variety of scales crossing boundaries;*
> - *A process for geographic information systems (GIS) and other communication technologies to enhance rural citizen knowledge to enhance economic development;*
> - *A community-based design process to empower rural citizens;*
> - *An opportunity to create synergism and entrepreneurship through systemic and holistic linkages and connections; an understanding of regional quality of life and unique sense of place in the rural landscape; and a way to connect with the world.* [20]

[15] Wendell Berry, "Local Expertise," *The Localization Reader: Adapting to the Coming Downshift* (Cambridge, Mass.: MIT Press, 2012), 181.
[16] Ibid, 185.
[17] Adam Brock, *Change Here Now: Permaculture Solutions for Personal and Community Transformation* (Berkeley, California: North Atlantic Books, 2017), 27–30.
[18] Thorbeck, Dewey. *Rural Design: A New Design Discipline*, 17.
[19] Dewey Thorbeck, *Rural Design: Establishing the Research Foundation for a New Design Discipline*, (Minnesota, US: Center for Rural Design University of Minnesota), 2.
[20] Ibid, 7.

Figure 7 Ben Stringer, Cover of Rurality Reimagined: Villagers, Farmers, Wanderers, Wild Things, 2015.

Figure 8 Pieternel van Velden, Greenhouse in the Netherlands, 2017.

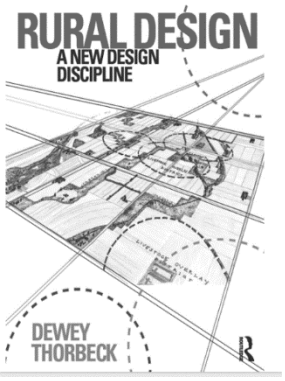


Figure 9 Dewey Thorbeck, Cover of Rural Design: A New Design Discipline, 2012..

Preconceived ideas about rural environments still have an influence on today's design practices, inadequately bringing urban design strategies to the rural context, or vice versa. In the urban context, architects normally work with affiliated professions such as engineers and planners. However, in rural areas the collaboration expands to agricultural engineers, biologists, conservationists, environmental scientists and farmers. This form of collaboration was addressed at the conference Re-Imagining Rurality through discussions from several disciplines about the revival of the countryside in Europe.[21] After this conference, Ben Stringer collected the information into a publication where he acknowledges Rem Koolhaas as thinking differently about the rural-urban dialogue. Koolhaas describes the rural region to be *"portrayed as an ultra-modern and rationalized present and future, and the city as a site of romance."*[22] Extremely polemical, this argument reverses the ideas of Downing, who two centuries ago viewed the country as a place of beauty, where more than half the population lived. In 2019, this subject is of great relevance since urban populations are considerably larger than rural populations, and rural areas have become as technologically advanced as cities. Furthermore, in New York City, Rem Koolhaas is pursuing recent research about the rural landscape for an upcoming exhibition at the Guggenheim Museum.[23] Koolhaas's work is an example of urban architects contributing to rural design conversations around the globe.

The evolving rural environment is a palimpsest of heritage layers consisting of the land, people's movement and their creations of buildings and artifacts. Thus, it creates a continuous process of placemaking. Thorbeck describes even placemaking as a part of rural design through the following quote:

[21] Ben Stringer, *Rurality Re-Imagined: Villagers, Farmers, Wanderers, Wild Things,* (US: Applied Research and Design Publishing, 2018), V. This conference was held in late February to early March of 2015 in London.
[22] Ben Stringer, *Rurality Re-Imagined: Villagers, Farmers, Wanderers, Wild Things,* (US: Applied Research and Design Publishing, 2018), V.
[23] Joshua Barone, "Rem Koolhaas Plans a Countryside Exhibition at the Guggenheim," (New York Times, Nov. 29, 2017), www.nytimes.com/2017/11/29/arts/design/rem-koolhaas-guggenheim-museum-countryside-exhibition.html.

Rural heritage is linked with rural future […] to shape the rural landscape and the character of its architecture to improve quality of life. Rural regions that have the greatest sense of place illustrate a strong design relationship between human and natural landscapes, agricultural heritage, climate and geography. These places were not designed to be the way they are. They evolved over time, yet we can learn from their character and heritage they have and utilize rural design as a process to create future rural environments with a strong sense of place and high quality of life." [24] While placemaking "*inspires people to collectively reimagine and reinvent public spaces as the heart of every community. Strengthening the connection between people and the places they share, placemaking refers to a collaborative process by which we can shape our public realm in order to maximize shared value.* [25]

Reflecting on the past heritage and placemaking of rural regions is a vital part of rural design, particularly in the context of a farmstead. For the designer, this means an opportunity for collaboration with the community to make flexible, sociable, adaptable, and healthy spaces.

The accumulation of utility artifacts is part of the process of placemaking on a farmstead. It results in an ethnographic study of artifact material culture and studying the heritage of the people. The material culture of objects can be a way to understand human relations, because social relations have a great influence on how objects are produced, and *"particularly human relations as realized through material objects."*[26] On a farmstead objects are not disposed of; instead, they are kept in place and used for different functions. These ever-changing functions develop a material collection of tools, clothing, vehicles, buildings, and salvaged material. Frequently, farmers prefer to keep materials for future use in order to repair, reinvent, rearrange and reimagine the role of the object in the farmstead. This process is similar to the architect's design process that includes the interaction of memories and materials. For Henry Glassie, we are *"born into architectural environments that condition [our] notions of beauty and bodily comfort and social propriety [with] collecting scraps of experience […] to feel at home [and] as we grow, memory runs wild undirected by future projects," resulting in, "an inner resource of association and gathers order,"* [27] for future spatial experiences.

Over the last two centuries, the rural context has evolved from vernacular architecture to rural design with the enhancement of the social interaction of the community and the amelioration of the relationship between agriculture and architecture. Thus, rural design on a farmstead can be created through critical design thinking, placemaking and material culture.

[24] Dewey Thorbeck, *Rural Design: A New Design Discipline*, 66.
[25] Project for Public Spaces, "What is Placemaking," Project for Public Spaces 1975–2018. https://www.pps.org/cateory/placemaking
[26] S.A. Tokarev, and translated by Peter Voorheis, "Ethnographic Study of Material Culture," American Material Culture and Folklife: A Prologue and Dialogue, (Ann Arbor, Michigan: UMI Research Press, 1985), 95.
[27] Henry Glassie, *Vernacular Architecture*. (Bloomington, Indiana: Indiana University Press, 1999), 17–18.

Figure 10 Green Venture

Figure 11 Vineland Greenhouse

Figure 12 Swallowfield Barn

2.2 Agriculture and Architecture Case Studies

The review of literature shows how the field of rural architecture has evolved over the years into a broader field called rural design. There are many successful cases where architecture and agriculture have been transformed into places of community interaction, material identity, and versatility. Such is the case of Green Venture (Hamilton, Ontario), Vineland Greenhouse (Vineland Station, Ontario), Urban Mushroom Farm (Seattle, Washington), Shobac Barn (Lunenburg, Nova Scotia), Organic Farming Commune (Village in China), Swallowfield Barn (Langley, British Columbia) and Sixteen-Oak Barn (Berlicum, Netherlands).

Community interaction is created through the tradition of sharing knowledge, experiential learning and interwoven local enterprises. Vineland Greenhouse is an innovative research centre where the tradition of sharing knowledge about horticulture and vegetable growth happens between researchers and students. Green Venture, a non-for-profit organization,[28] holds sustainable classes and workshops to teach the urban community about gardening through experiential learning. Whereas, the Urban Mushroom Farm is an experimental farm integrated into a café business.

In several of the case studies, the idea of repair, reuse, and reinvention creates a spatial experience based on the use of local, salvaged, and natural materials. More than being sustainable strategies, they reinforce the identity of the place. These strategies appear in case studies from different regions of the world, as in the Taiyang Organic Farming Commune, Sixteen Oak Barn, Urban Mushroom Farm and Shobac Barn. In the case of Taiyang Organic Farming Commune, the pig barn was built by the local community using locally sourced mountain bamboo and rivulet pebbles.[29] The pig barn and surroundings were designed around the pig's life patterns, considering the animal's comfort and a rotational grazing yard.[30] Sixteen Oak Barn was constructed from the once-existing oak trees on the property which were harvested to build the barn.[31] Even though it is situated in an urban context, the Urban Mushroom Farm has also made use of a sustainably sourced material. It exhibits the reuse of wood in the structure as an interior tensile pavilion.[32] The structure of Shobac Barn was relocated to its site from Annapolis Valley and made from *"rewalled and reroofed"*[33] wood material to be part of the experience of repairing and reinventing the use of the barn.

[28] Green Venture Staff, "Welcome to Green Venture," (Hamilton-Wenworth Green Venture, 2019), greenventure.ca/.
[29] "Building a Future Countryside. The Pavilion of China at the 2018 Venice Biennale," Ciff Furniture, May 23, 2018. https://www.ciff.furniture/chinese-trends/lifestyle/53-building-a-future-countryside-the-pavilion-of-china-at-the-2018-venice-biennale
[30] Ibid.
[31] HilberinkBosch Architects, "The Sixteen-Oak Barn/ Hilberink Bosch architects," Arch Daily, May 24, 2018. https://www.archdaily.com/894905/the-sixteen-oak-barn-hilberinkbosch-architects
[32] Inhabitat Staff, "Urban Mushroom Farm Pops Up in Olson Kundig Architects' Seattle Storefront," (Inhabitat, February 2, 2012), inhabitat.com/harvest-mushrooms-in-olsen-kundig-and-citylab7s-temporary-urban-farm-storefront/.
[33] Brian Mackay Lyons, "Shobac - The barn," 2015. http://www.mlsarchitects.ca/shobac/barn.htm

Figure 13 Urban Mushroom Farm

Figure 14 Sixteen Oak Barn

Figure 15 Shobac Barn

Figure 16 Organic Farm Commune

Versatility seems to be a keyword in each of the building case studies, since they present multifunctional programs and address both communities' needs and commercial interests. Green Venture has spaces to teach about sustainable energy sources that can also be rented out for events. Vineland Greenhouse integrated the header house into the same building as the greenhouse, as a way to monitor and learn about the vegetables.[34] Notably, the in-between zones at Vineland Greenhouse are not only common technical rooms, but also public spaces for events. While the Urban Mushroom Farm is a self-contained space within a café, it promotes a blurring of the functions of food production and community interaction. Shobac Barn is a multifunctional barn where architecture that can hold both food production and conferences. The Organic Farm Commune has a pavilion for versatile community gatherings. Plus, it has contributed to the global discussion about how their culture is trying to *"recover forgotten values and overlooked possibilities,"* to display the *"modernization with tradition,"* on the farm.[35] Swallowfield Barn uses its loft space for both storage and for community gatherings.[36] Plus, the Sixteen Oak Barn is a versatile barn for various workshop uses.

This chapter examined the amelioration of agriculture and architecture from two centuries ago, overseeing how rural architecture transformed into the broader field of rural design (Dewey Thorbeck). At a regional scale, the design for rural areas remains an occasional practice within architecture. However, when practitioners address rural design without preconceptions, considering urban and rural design with equality, new modes of collaboration occur. This allows projects that stimulate social interaction and help develop healthy spatial experiences for all. The agriculture and architecture have been ameliorated in the case studies through commonality of community interaction, material identity and versatility. At the particular scale of a farmstead, we saw that rural architecture began with farmhouses on romantic rural landscapes. The communities were composed of family farmers whose farms decreased in operation. This context requires a comprehensive reimagination in order to transform the farmsteads into cooperative farmsteads. The design process necessitates the methodology of rural design as a way to grasp the sense of place. Considering geography, materiality, heritage and social interaction is a fundamental step toward creating the contemporary cooperative community.

[34] "Vineland Collaborative Greenhouse Technology Centre: Vineland Research and Innovation Centre," Baird Sampson Neuert Architects, 2015, www.bsnarchitects.com/vinelandresearchcentre.
[35] Lu Hengzhong "Building a Future Countryside. The Pavilion of China at the 2018 Venice Biennale," Ciff Furniture, May 23, 2018. https://www.ciff.furniture/chinese-trends/lifestyle/53-building-a-future-countryside-the-pavilion-of-china-at-the-2018-venice-biennale
[36] "Swallowfield Barn / MOTIV Architects," Arch Daily, March 12, 2018. https://www.archdaily.com/890218/swallowfield-barn-motiv-architects

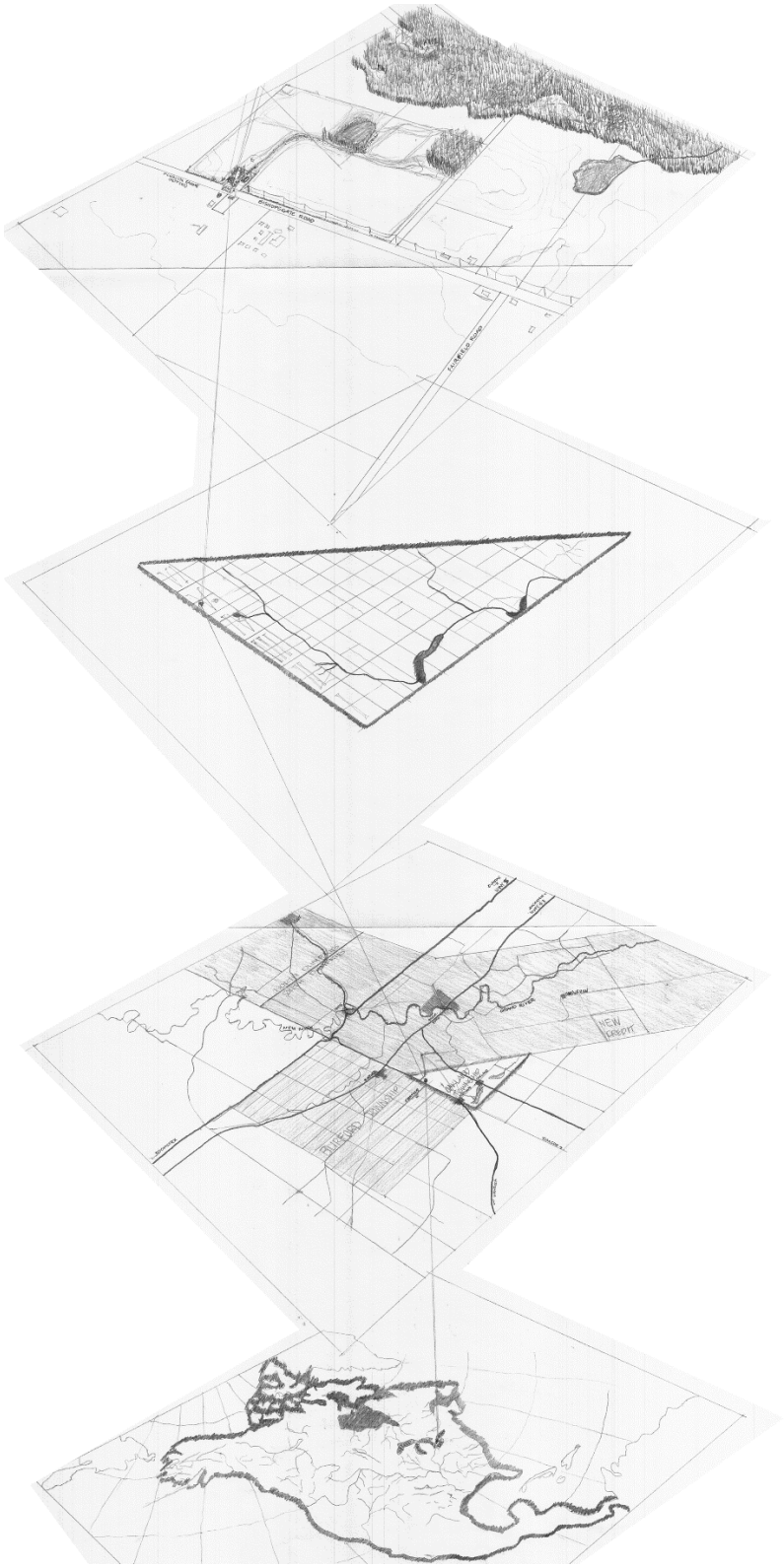


Figure 17 Layers of Grassridge

3.0 Restorative Rural Agritecture as Place-making: The case of Grassridge Farmstead

The main scope of placemaking is explored through the layers of geography, the interaction of people sharing agricultural heritage, and the farmsteads of Brant County, Ontario. Furthermore, over the last two centuries of the history of the site, a site analysis is undertaken with a material culture exploration of artifacts which need repair, reinvention and restoration.

3.1 Farmland and its people in Brant County, Ontario

The farmland of Southern Ontario was made by a retreating glacier which stretched from London to Orangeville. It moved in an eastward direction toward Lake Erie and Lake Ontario, leaving behind hidden aquifer ponds.[37] The soil above the aquifers is a mixture of sand and gravel which form the rolling hills with some clay soil in the valleys. Below the surface, the seeds of various vegetation began to grow with the bush, wetlands and oak plains growing in patches.[38] The movement of the people in the area has been ever-changing from the use of the Grand River and other waterways to the indigenous trails and trade routes, to the later military roads and current highways.

The impact of the indigenous communities who inhabited the southernmost part of the Great Lakes' watershed has contributed to the sharing of agricultural knowledge, which is still used today. The Haudenosaunee people of Six Nations were hunters, trappers and fishers, who also grew agricultural products such as tobacco, spinach and the three sisters which include corn, beans and squash.[39] The indigenous communities shared their knowledge with European newcomers who occupied the area, which was once known as Oakland and Burford Township. The European newcomers to this area were part of a religious cult, British Loyalists, rebels and Americans.[40] The original survey of Oakland Township was conducted on December 5, 1796, after the 1784 Haldimand Treaty took place.[41] The original surveyed forested area has become a gridded quilt of agriculture and farmsteads.

[37] Andrew M. Stewart, "Water and Land," *Before Ontario: The Archaeology of a Province*, (Kingston, ON: McGill-Queen's University Press, 2013), 24.
[38] Angela E. M. Files, *Oakland Township: The Early History and Records of the Smallest Township of Brant County*, 20.
[39] Marian Snodgrass, "The Snodgrass Residence," (County of Brant Public Library, 2017), images.ourontario.ca/brunt/3427932/data.
[40] Angela E. M. Files, Oakland Township: The Early History and Records of the Smallest Township of Brant County, (Branford, Ontario: Brant Historical Society 1994), 7.
[41] Ibid, 4.

3.1.1 Abandoned Farmsteads

In order to implement a restorative process, we have to understand the patterns of the abandoned farmsteads in Brant County. As they all were once used for multiple functions apart from the agricultural industry, the farmsteads in the County have either been decreased in operation, abandoned, or demolished.[42] Until recently they had been reimagined as a tree nursery, brewery, a part of agritourism, art studio, spa and recreational use.

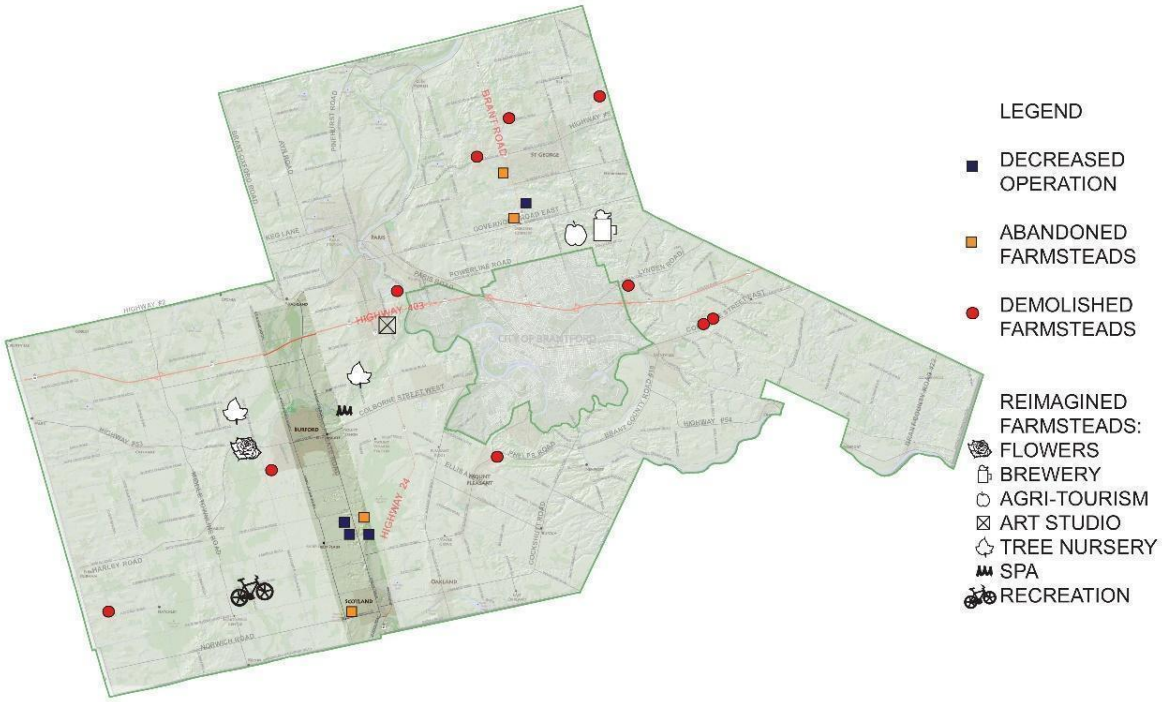


Figure 18 Farmsteads of Brant County

[42] "Ontario Abandoned Places." Brant County Abandoned Places — Ontario Abandoned, 2019. https://www.ontarioabandonedplaces.com/search.asp?city=Brant%20County&pr=Ontario

3.2 Site History

Grassridge was once part of a two-hundred-acre property which was sold by the Crown to Andrew Meyer in 1797.[43] He cleared the land acre by acre for his family. The process of making the land desirable to produce food was a spatial experience of long labour acre per acre, which included the cutting of trees, the burning of the stumps, and the stacking of the logs to dry.

In 1844, the property was prepared to be sold and in 1849, Joseph Smith bought 100 acres of the south plot of the Concession 5, Lot 1 of Oakland Township.[44] During the shift from family to family, the Smiths are believed to have built the outbuildings that include the barn, the sheds, and the regency farmhouse on the top of the hill in 1847.

The fieldstone foundation of the regency farmhouse would have been dug six feet below the grade in the spring. The fieldstones were mixed sizes of stones from the surrounding fields. They were broken to the desired size *"by a sledge hammer (not cut with a chisel) and when it was built in the ground they were always laid to rest on their natural base [by] selecting a straight side to show on the outside face of the wall."*[45]

The orange brick of the farmhouse was constructed through local knowledge of the land. When the Smiths built the brick farmhouse, the cedar trees would have indicated there was a clay soil among its roots to make unfired pottery and fired bricks which were made on the adjacent farm at Pepper's Pond.[46] Unfired clay bricks were made for the interior finish of the farmhouse brick walls. Unfired bricks were often used for non-loadbearing partition walls with 14% embodied energy compared to fired bricks.[47] The fired clay bricks were used on the exterior face, the structural walls and interior foundation and attached with lime mortar.

The property passed between various family members until the Pepper family moved onto the farm in the 1880s to farm and raise the original barn off the grade in 1905–1906.[48] James Snodgrass inhabited the farmstead at a young age and grew up as a farmer on the land. He bought/inherited the farmstead from the Pepper Family in the 1940s. The Snodgrass Family grew up tending a mixed farming operation including dairy, poultry, gardens, equipment maintenance, horses, orchards, and cash crop rotation until the late 1970s.[49] Between 1970 and the early 2000s, the family farm decreased in operation. Since 2007, the farmstead has sat vacant from its last use, weathering and waiting to be reimagined.

[43] Marian Snodgrass, "The Snodgrass Residence," (County of Brant Public Library, 2017), images.ourontario.ca/brunt/3427932/data.
[44] Angela E. M. Files, Oakland Township: The Early History and Records of the Smallest Township of Brant County, 20.
[45] Myron S. Teller, *The Early Stone Houses of Ulster County, New York* (Ulster County, New York: Ulster County Historical Society, 1974), 5.
[46] "Brant County Driving Tour." www.brant.ca/en/live-and-discover/resources/HeritageDrivingTour.pdf, 2005.
[47] Cathy Stongman, "Construction Material," The Sustainable Home: the essential guide to eco building, renovation and decoration, (London, England: Merrell Publishers Limited, 2008), 15–16.
[48] Marian Snodgrass, "The Snodgrass Residence," (County of Brant Public Library, 2017), images.ourontario.ca/brunt/3427932/data.
[49] Ibid.

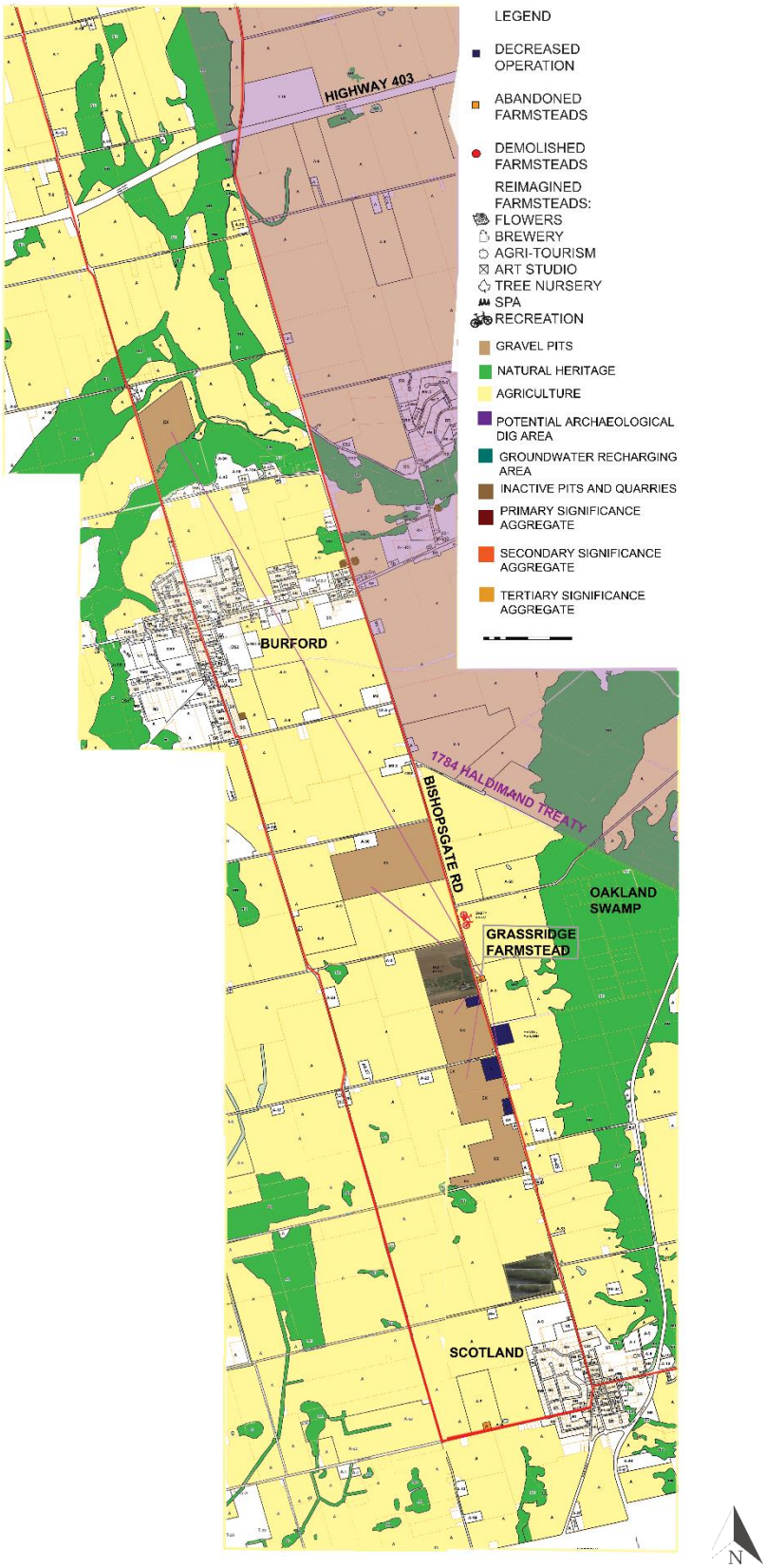


Figure 19 Map of Bishopsgate Road

3.3 Site Analysis

In the surrounding area underground between the communities of Burford and Scotland the conditions include a large water aquifer and protected water heads with primary aggregate nearby. Along the waterways are potential archaeological areas. The site of Grassridge is situated directly between the two communities and east of the site is a natural heritage forest called Oakland Swamp. West of the property is a contemporary dairy farm which has decreased in production. Other agricultural industries in the area include a large potato farm, tobacco, ginseng, corn, beans, wheat, hay, rye, potash, and rotational crop fields. In the rural region along Bishopsgate Road, there are sprawling gravel pits including twenty-three sites which are either active, inactive or abandoned.[50] The expansion of gravel pits causes the destruction of prime topsoil and subsoil for farming. The extraction of gravel causes environmental degradation. Thus, in the future the soil needs nutrients to be rejuvenated. Mushrooms, with its connecting mycelium, is an example of an agricultural process that may help to restore nutrients acre by acre.[51]

The existing condition of Grassridge includes four zones: the farmhouse, agricultural gardens, transportation, and fields. The landscape has become overgrown in places with invasive species. There are also plants such as cedar trees, tiger lilies, lilacs, rose bush, rhubarb garden, asparagus patch, and spruce trees. The existing buildings include a farmhouse which is deteriorating at the rear, a drive shed and a storage shed (milk shed). The wind comes mainly from the southwest to create favourable microclimates and the water on the site pools in the north corner of the property at the driveway and flows toward the road.

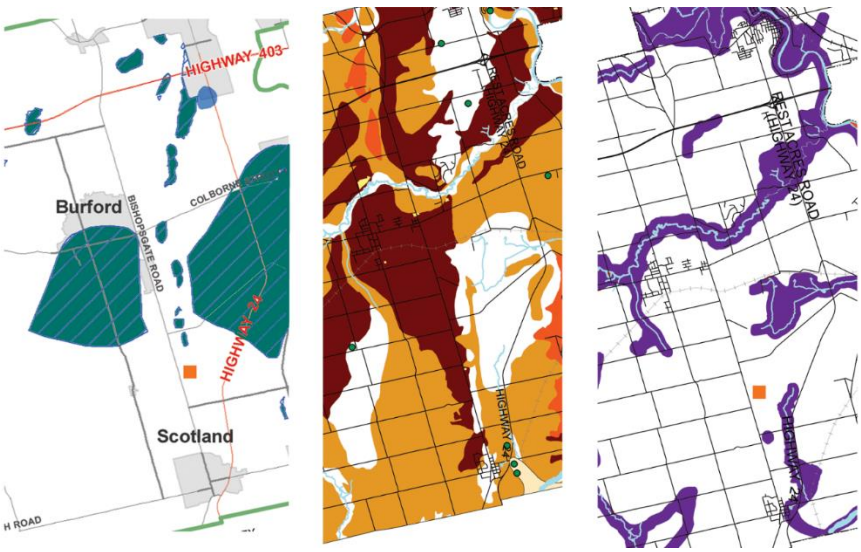


Figure 20 Burford to Scotland site conditions

[50] Nicholas Van Allen, "Crushing It," Better Farming, (Guelph, Ontario: Better Farming, 2018), 37.
[51] "Matsutake mushrooms form symbiotic relations; they make it possible for surrounding trees to forage for water in a lot more places, and they bring nutrients in." Anna Tsing, "The Politics of the Rhizosphere," Into the Woods, (Cambridge, MA: Harvard University Graduate School of Design, 2018), 50.

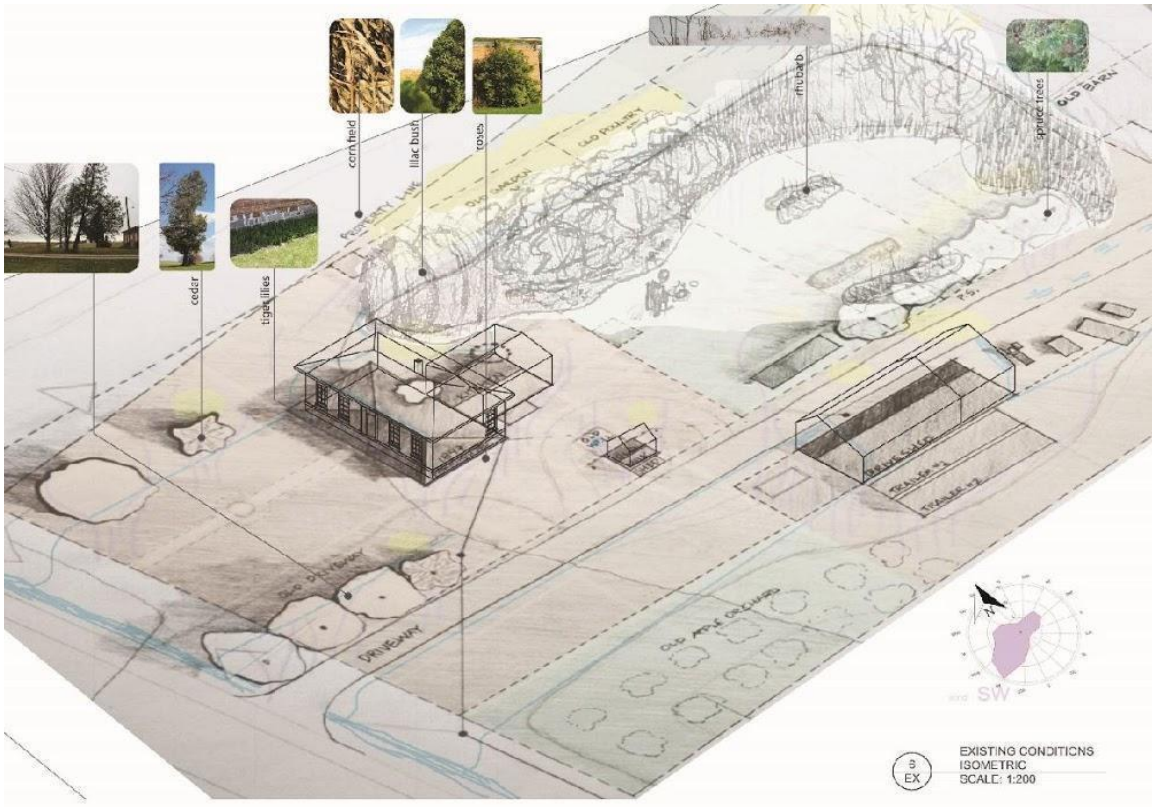


Figure 21 Existing site conditions isometric view

3.4 Material Culture Analysis

The vernacular farmstead has become a collection of artifacts of various individuals each with their own social-cultural history of material culture with layers of memories. From exploring the site, the following objects and artifacts have been selected to create a methodology for exploring and understanding the types of events which have occurred on the site, and to determine what shall be repaired, reinvented and restored for future use.

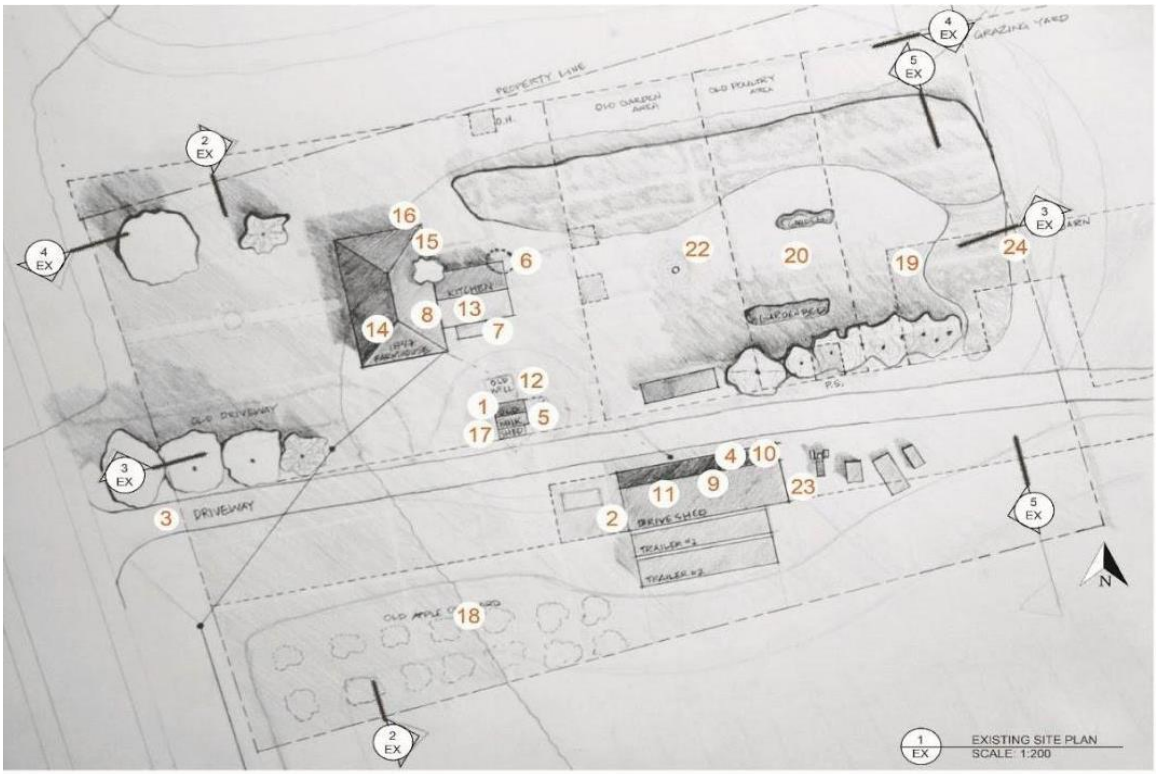


Figure 22 Existing site plan with artifacts

Repair:

1. claw rake
2. scythe
3. straw chopper
4. hand saw
5. bow saw
6. brick
7. sewing table
8. piano
9. Implement storage shed
10. wooden beam
11. trusses

Reinvention:

12. water bucket
13. tin ceiling in the kitchen
14. oil tank—source of heat
15. satellite
16. window detail envelope
17. milk shed
18. agricultural process

Restorative:

19. barn
20. gardens
21. batten and brace door
22. fireplace
23. barn board
24. barn truss system

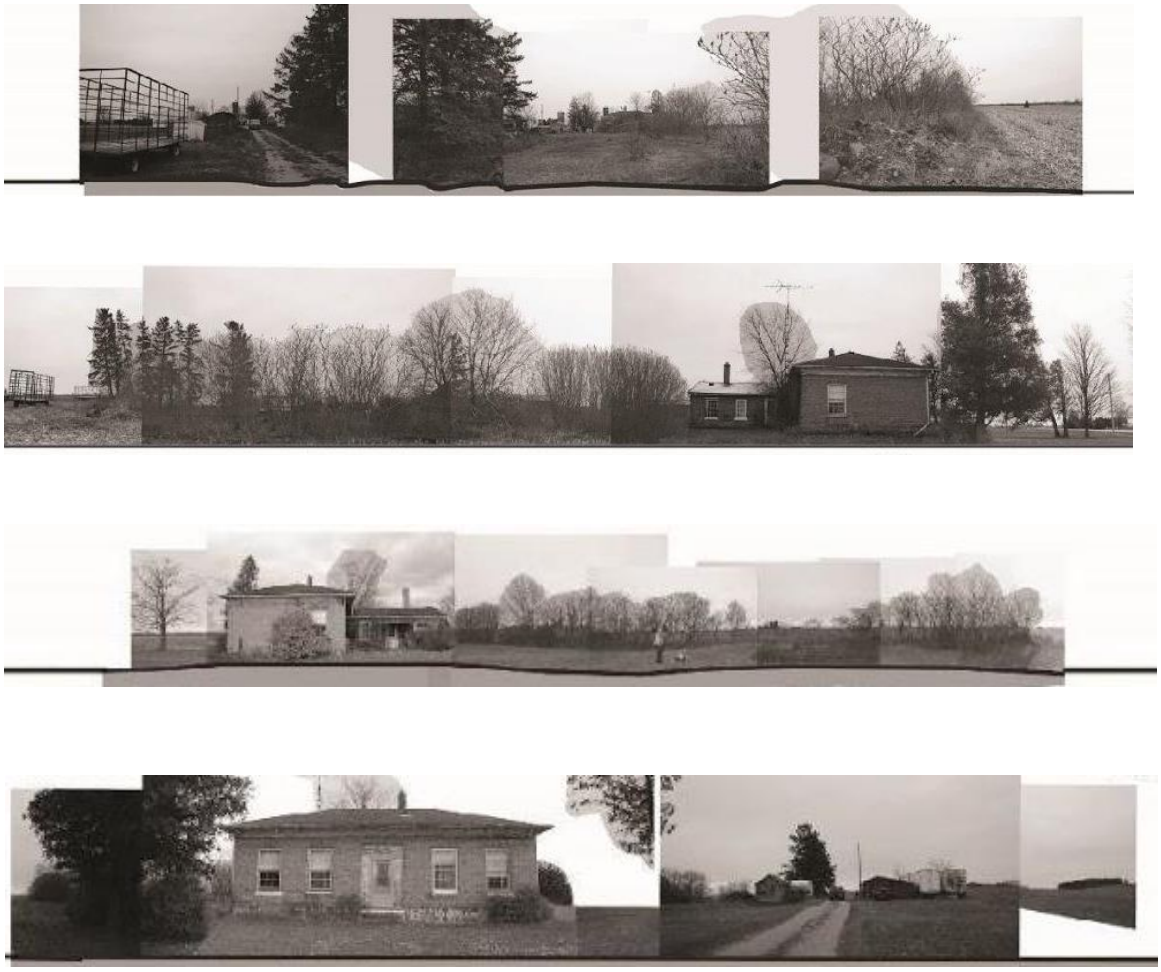


Figure 23 From the ground up: West View, South View, North View, East View.

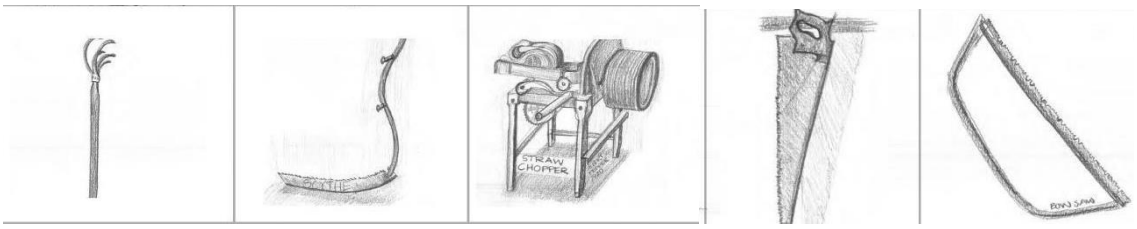


Figure 24 Tools which need repair: claw rake, scythe, straw chopper, hand saw, bow saw

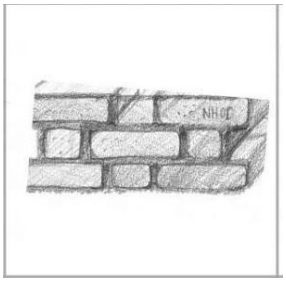


Figure 25 English brick

Figure 26 Hobbies: Sewing table, Piano, Baseball bat

3.4.1 Repair

The tools of the farmstead are hung on the interior of each building placed in their spot after their last use. The bow saw and claw rake were hung in the milk shed weathering away in rust waiting to be used once again. The straw chopper is from the Peppers' farm, and is stored away with their family as part of a memory of use. The scythe, a tool for cutting the crops away, has vanished from use on the farmstead and replaced with more contemporary conventional harvesting devices pulled by the Massey Tractor. The repair and reuse of tools have always been part of rural life.

The farmhouse began to show its age of 150 plus years with large cracks in the brick due to upheaving of the foundation from frost. The brick repair work is minor in the interior. The plan for the exterior includes removing the rear of the house brick by brick and reclaiming the material for repair and reuse on the addition.

The artifacts from the hobbies of the farmstead which need repair are the sewing table, piano and baseball bat. Repairing these items means they are remembered by collective memory as to what their function is and can continue to be. The sewing table top has decomposed. It was once used to make and mend the fabric materiality in the house. When reviewing the piano, tuning seemed to be the only change which needed to happen so it could continue to carry the sound of the echoing keys in the farmhouse. The baseball bat was left in the basement against the door and would need some sanding and polishing. Each hobby artifact is part of a community of social interaction which increased the happiness and healthy lifestyle for the people.

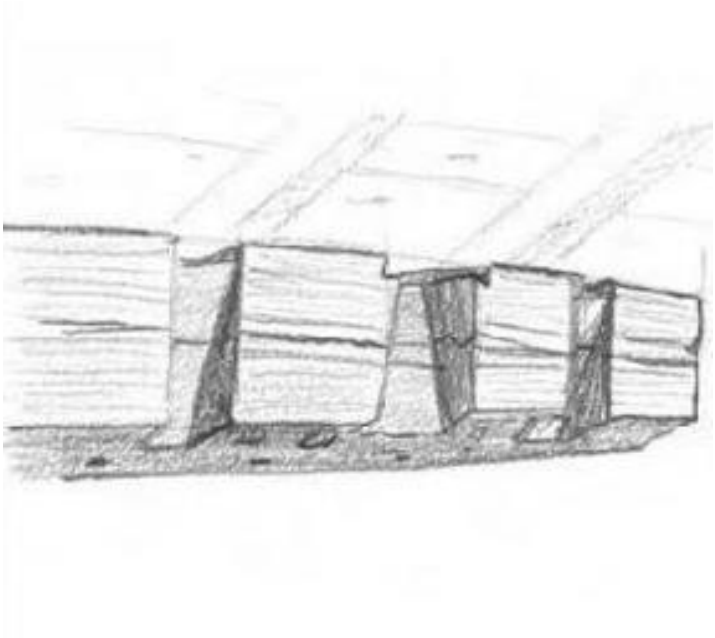


Figure 27 Wooden Beam in the Implement/Drive shed

In the implement storage shed many transportation parts can be found under the dust and tarped areas. The odd part of the shed is where all structural and envelope material came from as it is a story of its own. In the 1900s the historic barn on the property stood tall and well in a u-shaped form with no earthwork stone pediment.[52] However, the barn was elevated with a stone foundation by the Pepper family and the function of the barn was for livestock including horses, hogs, chickens and cattle.[53] In the 1950s, when the Snodgrass family was beginning to live on the farm, only cattle and poultry stayed in the barn. In the 1970s, the summer air loomed over the area as the original barn was demolished[54] by the family farmers. It happened due to the aging population on the farmstead and the operations of the family farm were decreasing. The barn was a u-shaped barn with a gable roof. The roof would have been covered originally with cedar shingles and have barn pine cladding. The structure was made of heavy hand-crafted timber that would have been milled in the local area.

As of 2018, the interior structure of the drive shed has horizontal supports from the original barn, some in need of repair. The simple wooden beams have seen every change of rearrangement and use. The next phase of analysis, from the layers of repair and reuse is to come to understand what cannot be repaired, but reinvented.

[52] Marian Snodgrass, "The Snodgrass Residence," (County of Brant Public Library, 2017), images.ourontario.ca/brunt/3427932/data.
[53] Ibid.
[54] Ibid.

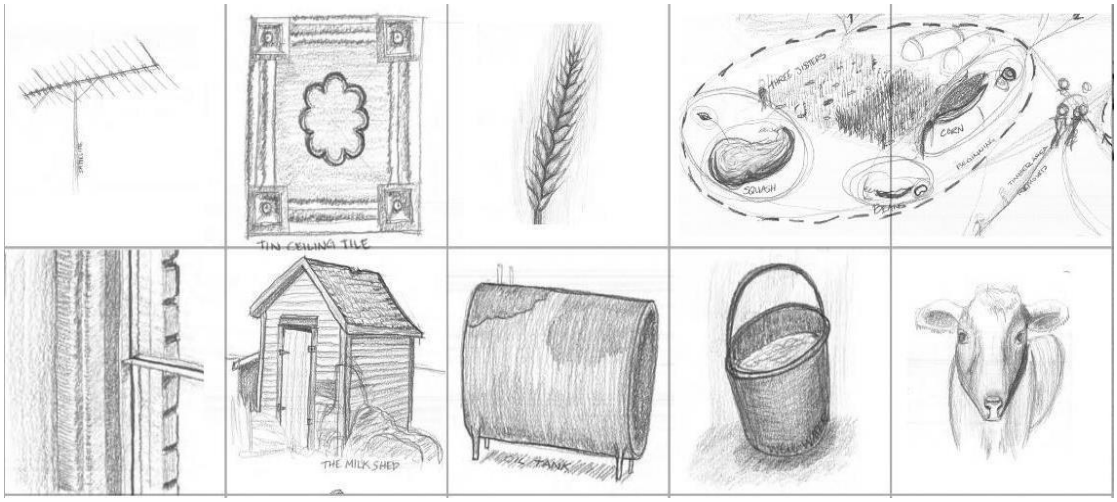


Figure 28 Systems: Satellite, Ceiling tile, rye, window detail, milk shed, oil tank, water bucket, agriculture.

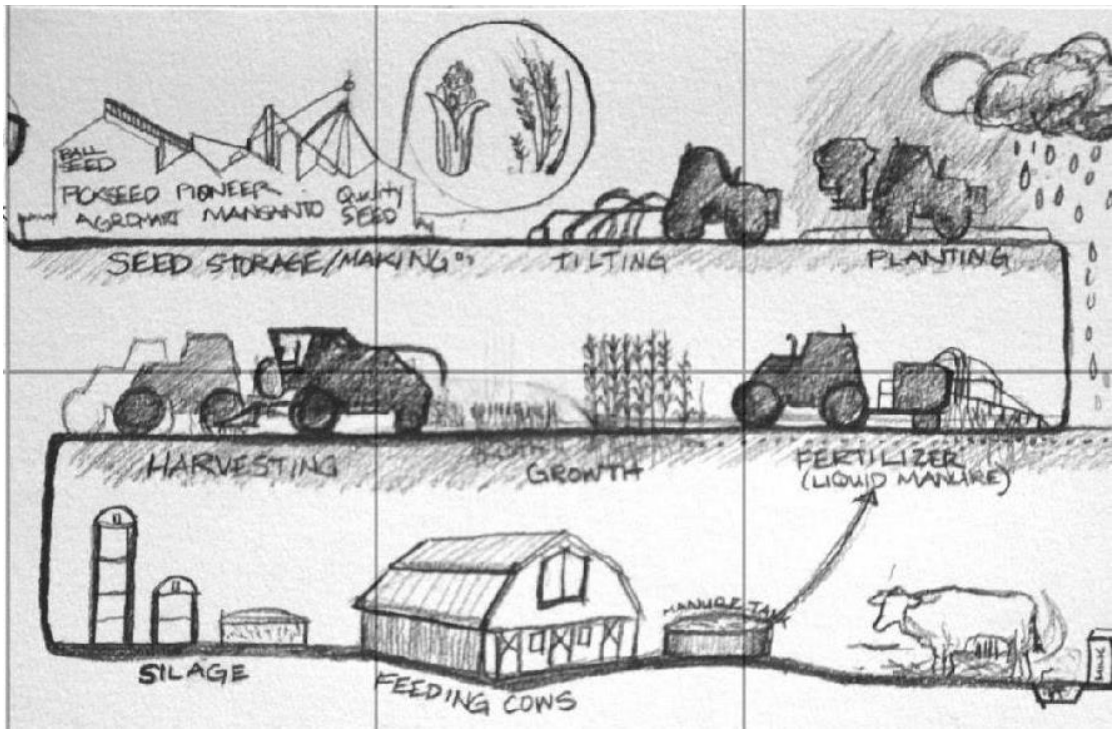


Figure 29 Past agricultural process: Conventional Dairy Farm

3.4.2 Reinvention

The systems on this farmstead need to be reinvented with new water management systems, natural heating systems, a source of renewable energy, and new technical systems and passive envelope strategies for the new buildings

The agricultural process on Grassridge needs to be reinvented. The last main agricultural process on the farmstead was a conventional dairy farm and the farmlands surrounding Grassridge still sustain the dairy farm across the road. As such, the conventional dairy farming process starts with the farmer needing to feed and maintain his farm. They accomplish this by preparing and planning for the future of the farm to be healthy. They prepare by observing the weather, the economy, what is happening in the agriculture industry, and testing the soil to see if it has the correct pH level of 5.5-6.5 to be fertile.[55] The testing can be done by the farmers or a sample can be sent to the local Cooperative Extension Service. The soil test will allow the farm to know if they need to add compost, manure, peat, lime or organic material to increase the energy nutrients in the soil to help with a successful yield. The conventional dairy farmers would use suppliers of genetically modified seeds for corn and hay. The seeds one day would become silage for feeding the cows, heifers, bulls and calves in the barn. The seeds are made in a lab off-site by companies such as BallSeed, Pioneer, Quality seed, Monsanto and Pick Seed which can be stored in grain elevators. Through contemporary transportation, the farmers ship seed or can even pick it up locally at a cooperative. The farmer's job from here is to understand when to plant the crop if it be in May or later.[56] The next steps are the tiling of the topsoil, the planting of the seeds and letting the weather and nature look after the crop. The solid manure from the cows would be spread over the land as fertilizer to help the health of the crop. The harvest can occur in multiple ways with different equipment and storage for silage. The equipment is a combine or a tractor and the storage options vary with either tall blue oxygenated silos, short concrete silos, or contemporary bunker silos. From here the cows are given the silage during a scheduled manner where the cows are milked afterward. The dairy is transported into the milk truck/trailer to be pasteurized and eventually delivered to the consumer.

The previous agricultural process needs to be reinvented on the site as the silo, barn, and outbuildings related to the conventional farming operation needed 100 acres to operate. Furthermore, the agricultural process required there to be crop rotation, pastures, and silage crops on the farmland and farmstead, except, Grassridge has been severed off from its traditional farmland to be only one and half acres. Thus, the agricultural process needs to be reinvented for the micro-scale that reflects the heritage of the site with a large garden and a place for the cooperative community.[57]

[55] Janice Stillman, The Old Farmer's Almanac Canadian Edition, (Dublin, NH: Yankee Publishing Inc., 2018), 30.
[56] Ibid, 234.
[57] The family community starts with the "zone of intimacy of 3–10" people where "work is done in small teams and the "zone of trust" would be 10–25 people in shifts of movement of operation on the farmstead. When networking out it becomes the part of the "zone of cooperation." Adam Brock, Change Here Now: Permaculture Solutions for Personal and Community Transformation (Berkeley, California: North Atlantic Books, 2017), 27–30.

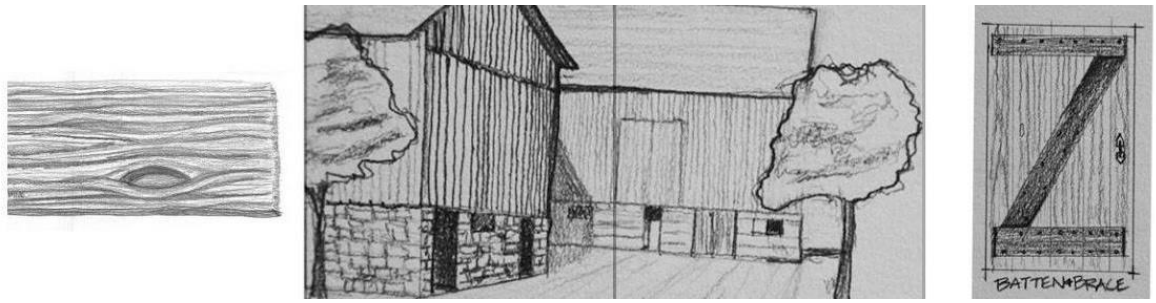


Figure 30 Restorative wood use

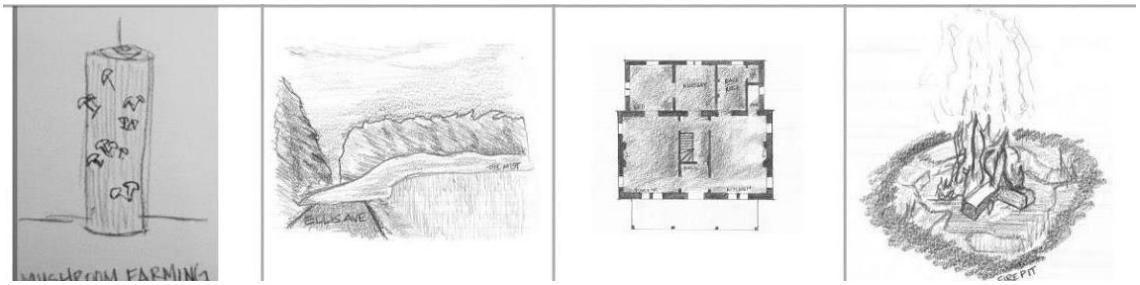


Figure 31 Elements: mushrooms, mist, floor layout, fire

3.4.3 Restorative

The reuse of natural wood such as pine has been dominating on the heritage of the site since the beginning with the cladding of the old U-shaped barn being reused to clad the drive shed. Even in the basement of the farmhouse the batten and brace door are made out of pine. The wood materials of the farmstead are regenerative material and can be part of the restorative process.

The natural elements of the site have actively started to grow mushrooms on the north side of the implement and drive shed growing out of the root system of a tree which used to exist on the site. Given that the natural conditions already exist for mushrooms on the site, what if mushroom cultivation was part of the function of the reimagined farmstead? The elements of mist, the sun and fire have helped to create the site and will continue to exist on the site to restore usage to the function of the place. The water has been a hidden feature on the site and naturally will always be this way. The fire pit has been existing for many years as a place to relax and cook food. The sunlight on the interior of the buildings is breathtaking due to the size of windows and the oak finishes. Thus, these elements and features shall continue to exist and help to restore the functions to the reimagined farmstead.

3.5 Placemaking Synthesis

From the sequence of events over the last two centuries with the case of Grassridges' farmland, its people, history and artifacts, it can be said there is a consistent pattern of placemaking. This pattern begins with the land consisting of the movement of water, the soil, the seeds, and the forest. The people arrive to live with the land to capture the use of fire, wood, and stone to build vernacular buildings and cultivate the land.

The farmhouse process of construction occurred in the events of travelling by way of water and then walking the distance on soil to start to build the farmhouse with the materials of clay soil and firing the bricks to build the exterior of the house. Next the foundation was made with the use of fieldstone, and the upstairs was framed with the use of local timber. The interior envelope was made from plaster and decorated with fabric materials or wallpaper. Metal connections were added for the thresholds into each room.

The barn was constructed by the locals and the owners with the sequence of water, soil, wood, stone, and metal. The shed was constructed through the events of deconstructing the barn and salvaging the materials. The sequence occurred from the ground up with the mixture of flooring as soil and concrete, and a mixture of salvaged timber and new lumber supports. It was clad in the front with metal and the rear with salvaged barn pine. While the low dual-pitched roof was clad in metal. The process of the land, the people and building are in a continuous cyclical loop narrowing down on the material culture of Grassridge. As this cycle repeats, materials are repaired by being reimagined for reinvention to create a restorative process for material. Thus, the restorative process of material for this site starts with the farmland of the water, soil, and seeds. This process continues to the material interaction with people, fire, salvage wood, stone, gypsum, fabric, and metal to thus re-create a once-abandoned farmstead to become a cooperative micro-farmstead.

Figure 32 Farmstead Isometric Plan

4.0 Rural Agritecture Design: Grassridges' land, cover and function.

According to Thorbeck, "When form follows function, climate and place, the result can be good architecture."[58] These principles summarize our intentions to condense architecture and agriculture into one entity: rural agritecture.

The design of Grassridge farmstead ameliorates agriculture and architecture in this rural design context, exploring the potential of an abandoned farmstead to be transformed into a cooperative micro-farmstead, that includes activities related to farming and agritourism. This project includes four main strategies: (1) the landscape design, (2) the adaptive reuse of the existing farmhouse, (3) the creation of a new building for agriculture production—an ag barn, and (4) the expansion and transformation of an existing storage space into a community repair and reinvention workshop.

As well, the program of the farmstead helps to regenerate the abandoned gravel pits in the area. In this case, the project shows how through a set of transferable restorative principles and an adaptable place-making methodology other abandoned farmstead in Brant County can be reimagined to have their own cooperative community.

[58] Dewey Thorbeck, *Rural Design: A New Design Discipline* (New York, NY: Routledge, 2012), 225.

Figure 33 Site plan

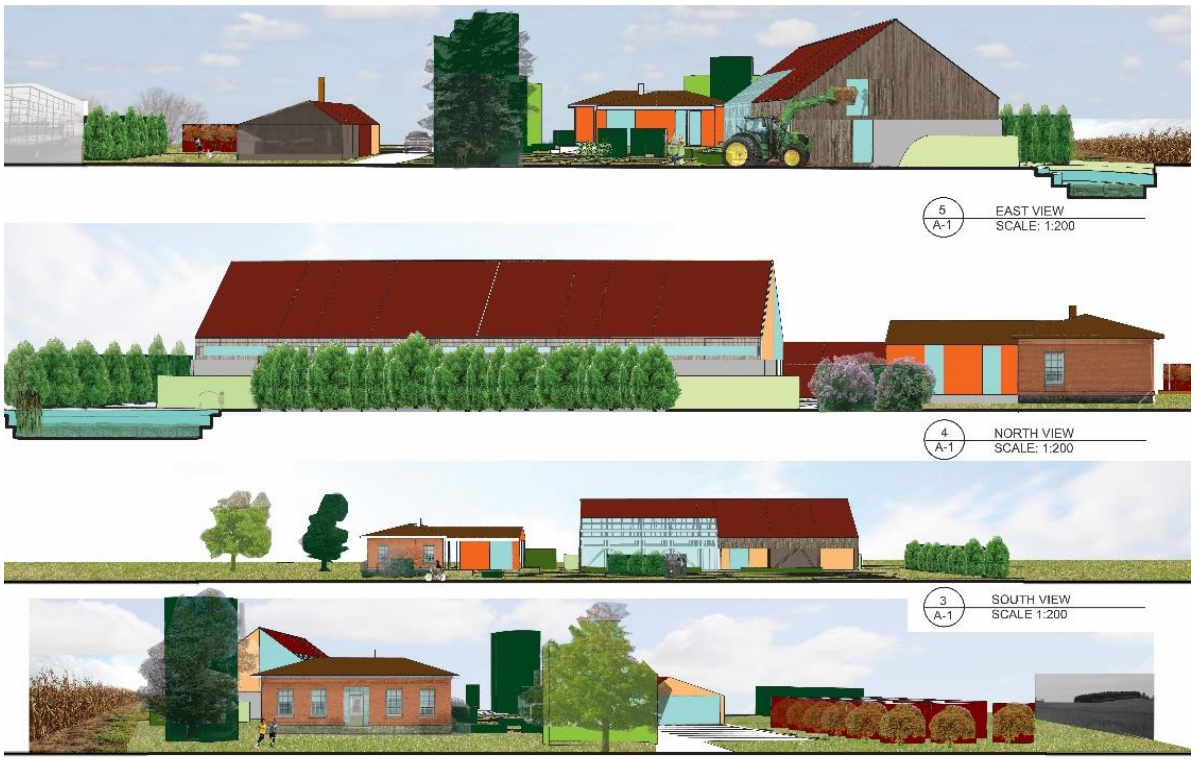


Figure 34 Grassridge View

4.1 Landscape Design

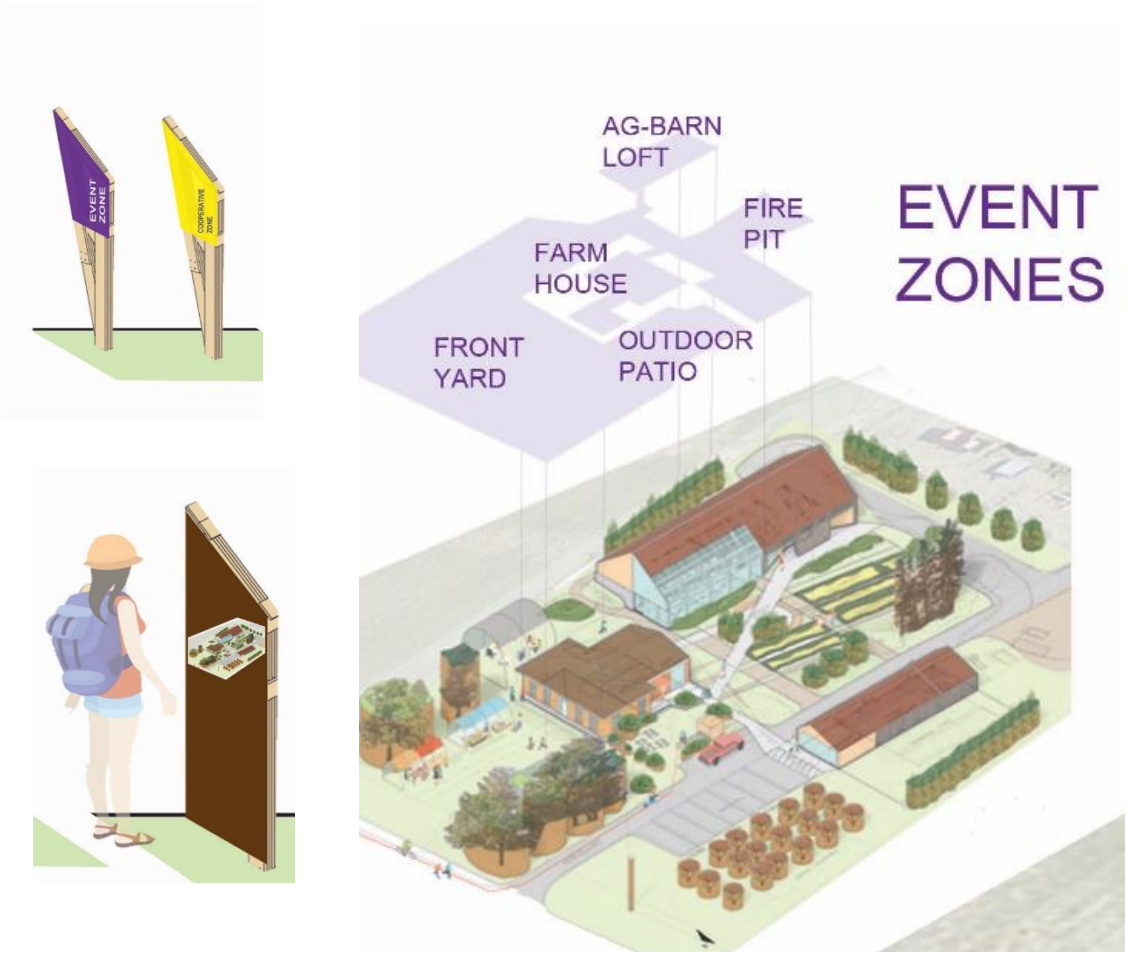


Figure 35 Wayfinding and event zones

The landscape design on the site has a mixture of existing conditions and alterations to the farmstead land. The transformation of the landscape occurred through understanding the agricultural zones of production, and the agritourism events to happen on the site. The cooperative agricultural gardens have herbs close to the farmhouse, native plants close to the ag barn, vegetables in the diagonal beds and an apple orchard in the south section of the farmstead. The front yard consists of the existing trees and a grass plain for multifunctional events to happen above grade with a septic system below. On the south side of the farmhouse, there is a bike rack and outdoor patio protected by cedar bushes from the prevailing winds. When journeying from the farmhouse to the ag barn, there is a fire-pit and agricultural gardens to generate the integration of public and production spaces. From the beginning of the growth of the gardens, similar to Green Venture, the cooperative would "obtain a yield"[59] for the local enterprise of the micro-farm.

[59] Twelve permaculture principles which are observe and interact; obtain a yield; catch and store energy; apply self-regulation and accept feedback; use and value renewable resources and services; produce no waste; design from patterns to details; integrate rather than segregate; use small and slow solutions; use and value diversity; use edges and value the marginal; and creatively use and respond to change. Adam Brock, *Change Here Now: Permaculture Solutions for Personal and Community Transformation,* xviii.

Figure 36 Summer Market

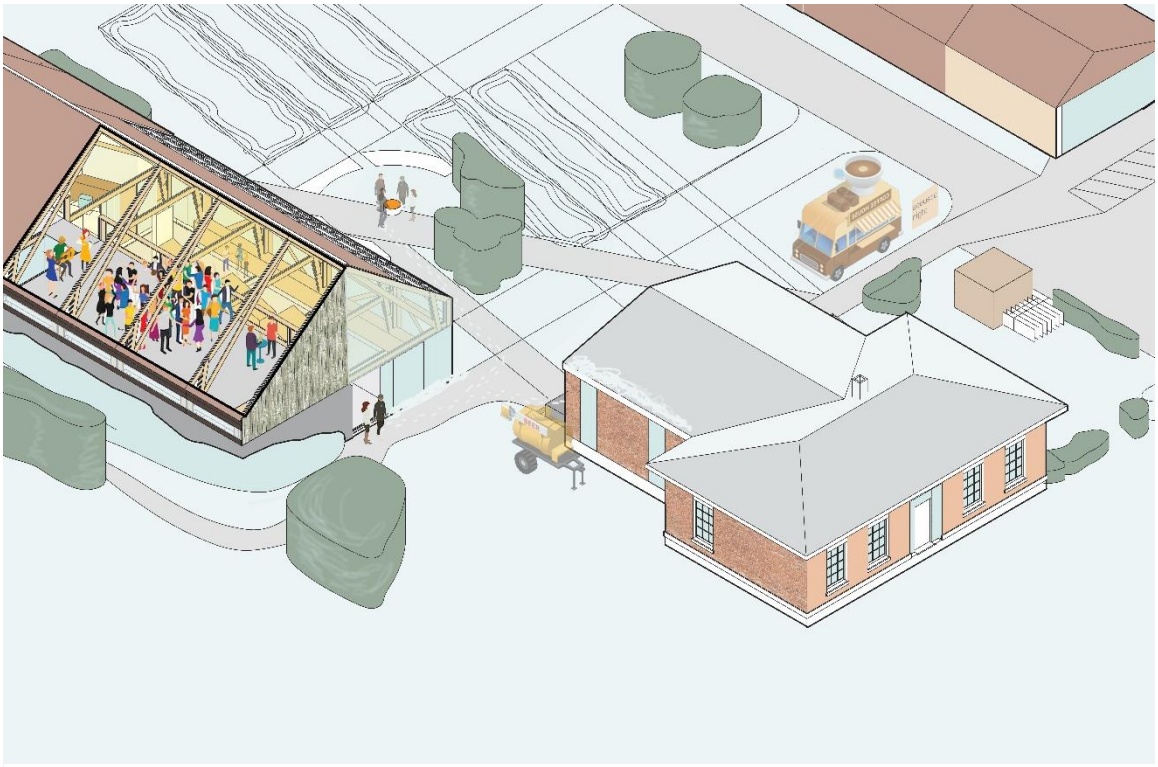


Figure 37 Winter ag barn gathering

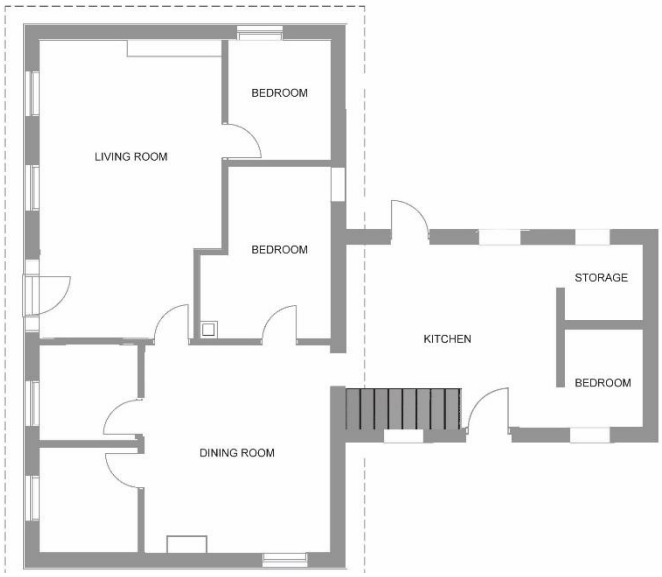


Figure 39 Existing main floor plan

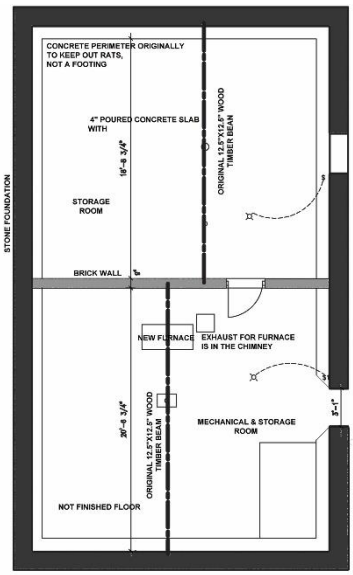


Figure 38 Existing basement plan

4.2 Farmhouse

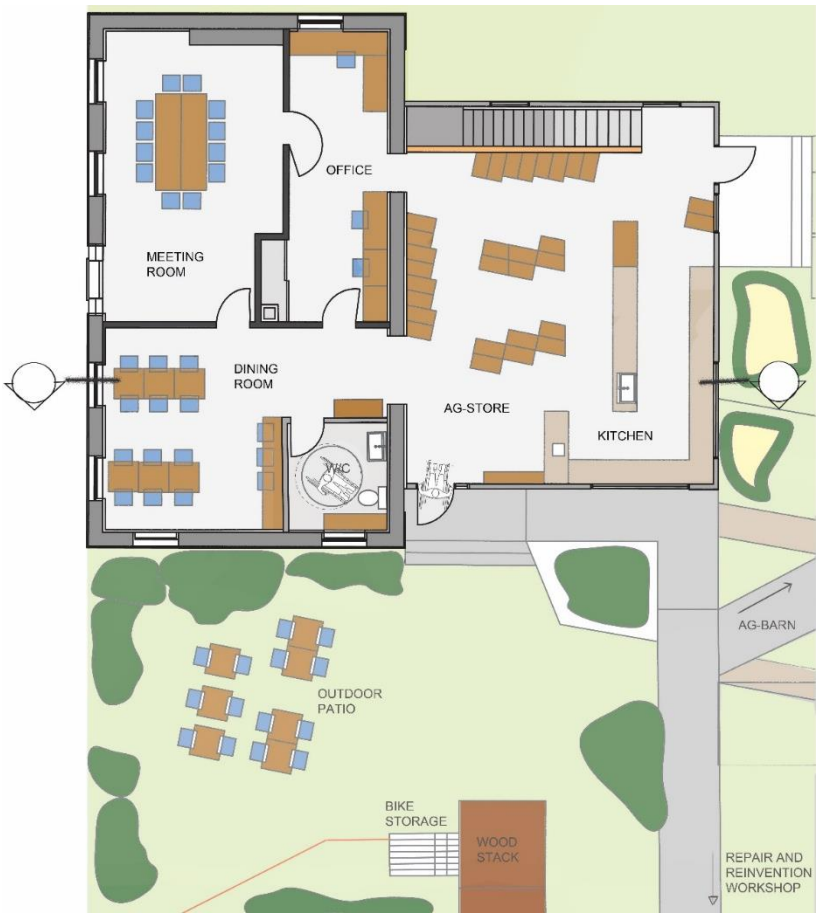


Figure 41 Farmhouse floor plan

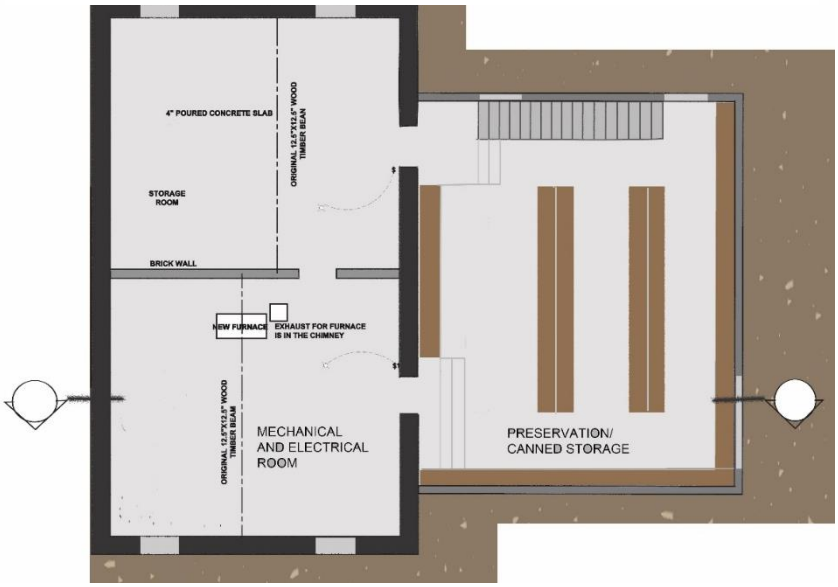


Figure 40 Farmhouse basement floor plan

Figure 42 Farmhouse Section

Figure 43 Kitchen View

The vernacular regency farmhouse was originally built in 1847 with a t-shaped floor plan containing the kitchen in the rear with the pantry and bedroom. While in the front section was a dining room, living room and three bedrooms for the farmers. The rear of the farmhouse is deteriorating; thus, it needs to be deconstructed and reconstructed.

The cover of the farmhouse on the original portion has fieldstone foundation, exterior walls made from English and Scottish orange brick lay, a metal roof, and a mixture of walnut, pine, oak and cedar wood interior. The revived east addition is made out of materials such as SPF. lumber and cladded in recycled brick with a low gable roof.

The main threshold to the farmhouse is on the south west side of the addition, to enter the cooperative farmhouse. In the existing section of the farmhouse, the functions include a main dining room for customers, an accessible water closet and an office for private management of the farmstead. Plus, a large meeting room with a fireplace for renting out when the community cooperation is not using the space. The program in the rear consists of a kitchen where sandwiches, sauces and fresh food can be bought in the ag store. As well, the stairs to the basement can be accessed here to go down to where there is preserved food storage, mechanical and electrical room. The technical systems of the farmhouse include rainwater cisterns, well water with a closed loop for sustaining the water intake from the aquifers below, and used biomass for cooking. The functions of the farmhouse allow the farmstead to help sustain the economic production of agriculture, thus becoming a vital destination between communities.

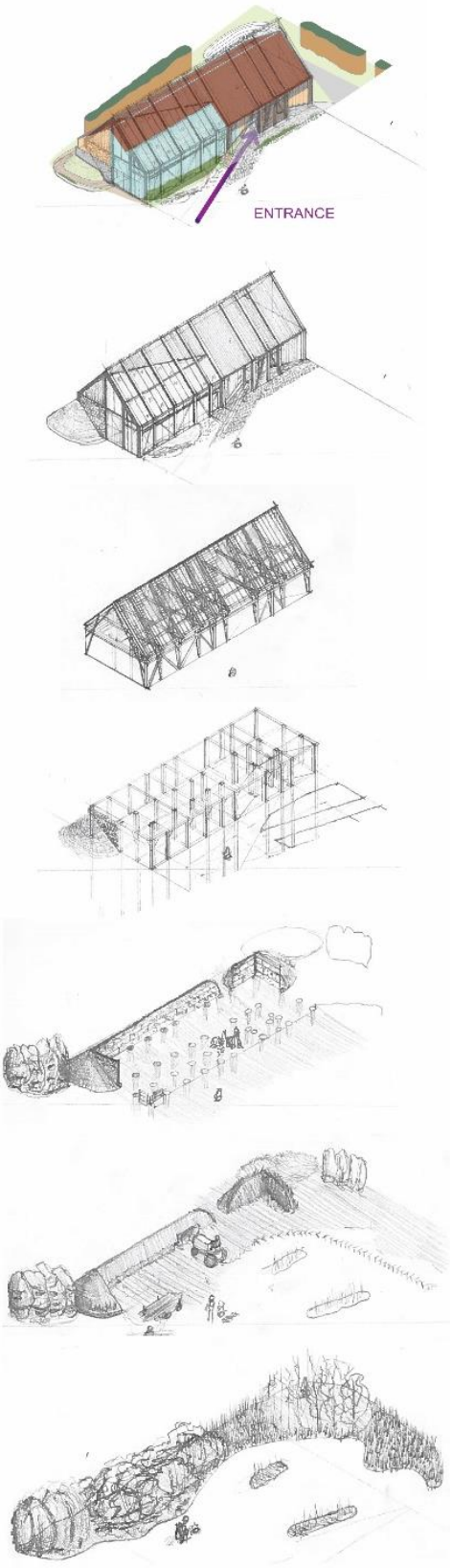


Figure 44 Transformation of ag barn

4.3 Ag Barn

The ag barn, an agricultural barn, is a building for producing vegetables, native species, nutrients and compost to create a local cooperative community. The ag barn is located in the original garden zone to continue the tradition of agricultural growth in this location. It is transformed from the overgrown invasive species to having a berm on the north section with foundation posts dug, structure built and envelope placed on the ag barn.

The cover of the ag barn reflects the surrounding vernacular traditions and heritage with firstly understanding its function of being an agricultural building. It reflects its architectural heritage with the structure being inspired from the vernacular tradition of additive framing which is rooted in the construction of barns in the area. Plus, the shape of the ag barn allows for the most effective cross ventilation to maximize use of prevailing winds.

The function of the ag barn is to have a sub-building inside with a controlled greenhouse where native seeds are stored, seedlings are grown, prepared for shipping, and preservation occurs in the south section to capture the most amount of sunlight. The growth of the seedlings is grown inside in the winter and transported outside in the summer to develop the soil. As well, there is access to the expansion loft shape at the northwest end of the greenhouse. Furthermore, the vegetables can be either part of selling in the ag store to the public or for the cooperative community. Whereas, in the northeast section of the ag barn, a micro-mushroom farm is kept cool by the exterior stone podium walls and barn bank, it also creates the preferred environment which the mushrooms like to grow in. The micro-mushroom process flows from the entrance into the lab and preparation areas where there is access to the loft space where straw bales are stored for the vertical mushroom growth. Next is the incubation zone where spawning happens in glass containers which reflect the ideas of the urban mushroom farm case study. From this zone, the spawning and straw bags, logs or wall column cultures are used for growing the various types of mushrooms including oysters and white mushroom.[60] When the cycle mushrooms are ready, the mycelium becomes part of the compost in the greenhouse and the mushrooms are stored in cold storage for either delivery to the ag store, farmers market or compost.

To reflect, this continuous cycle of restoring the soil would help with supplying nutrients to one day regenerate the abandoned gravel pits and future inactive gravel pits in the area.

[60] Tony and Tegan. “Everything you need to know about starting a small-scale mushroom farm,” Freshcap mushrooms, 2018. https://freshcapmushrooms.com/learn/how-to-grow-mushrooms/

Figure 45 Ag barn entrance

Figure 46 Ag barn Section

Figure 47 Ag barn second floor plan

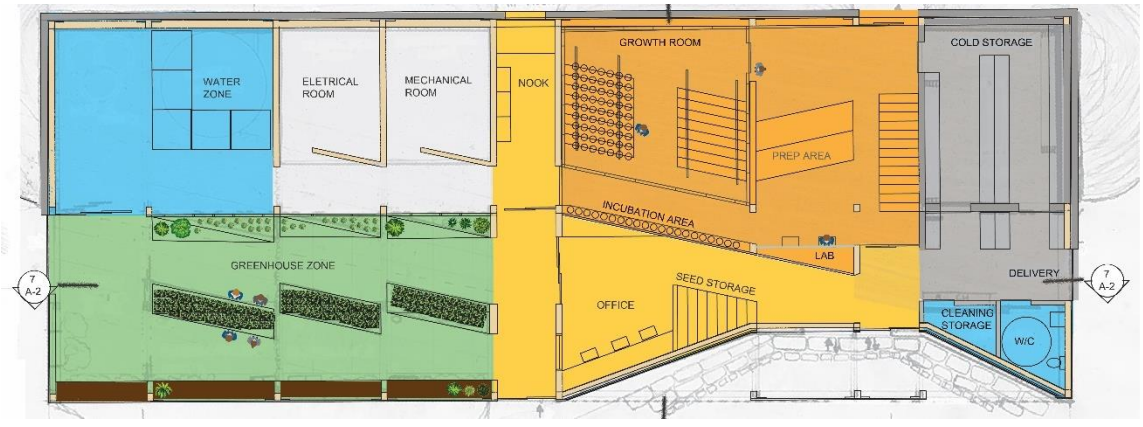


Figure 48 Ag-barn floor plan

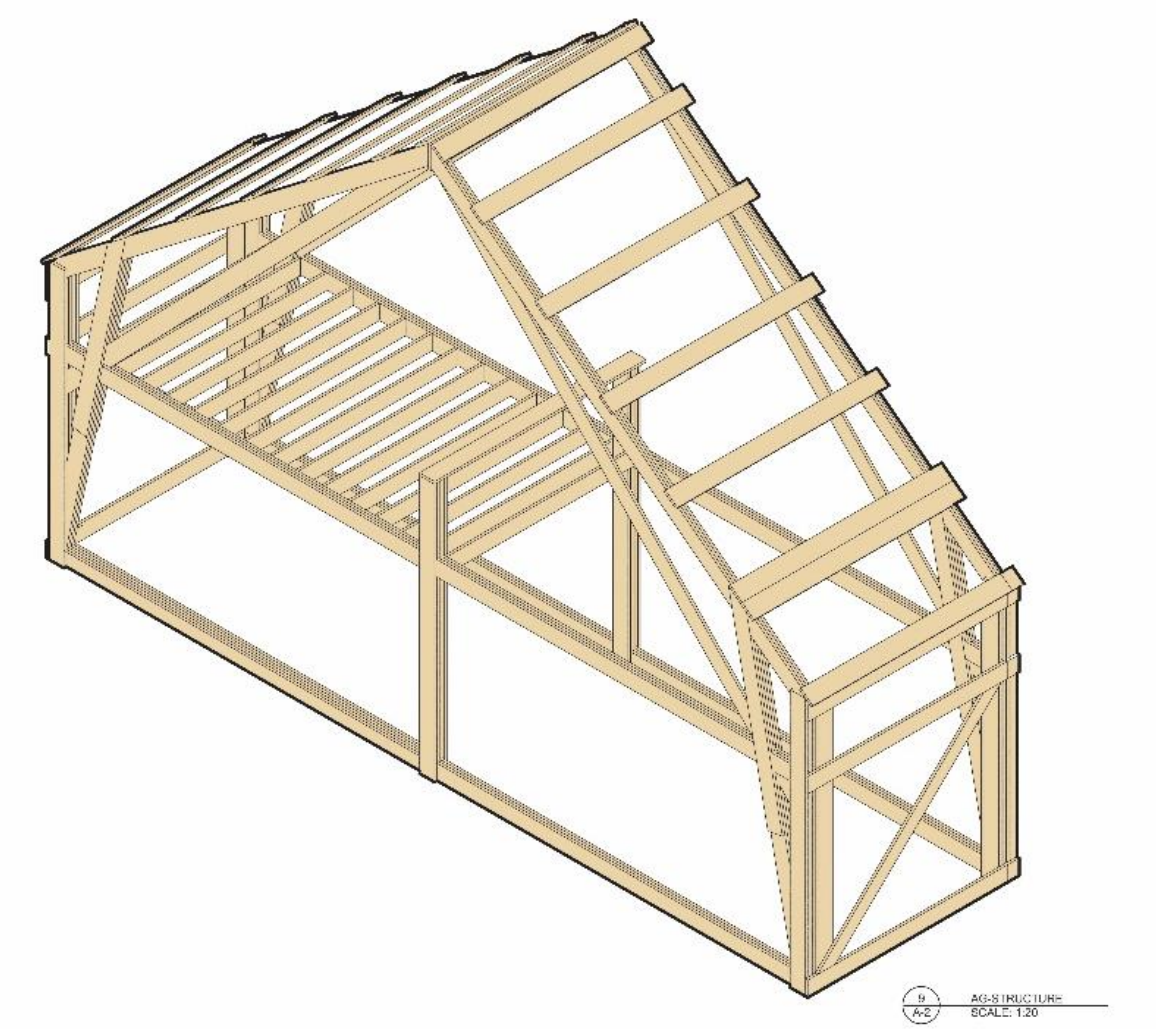


Figure 49 Ag structure

Figure 50 Greenhouse

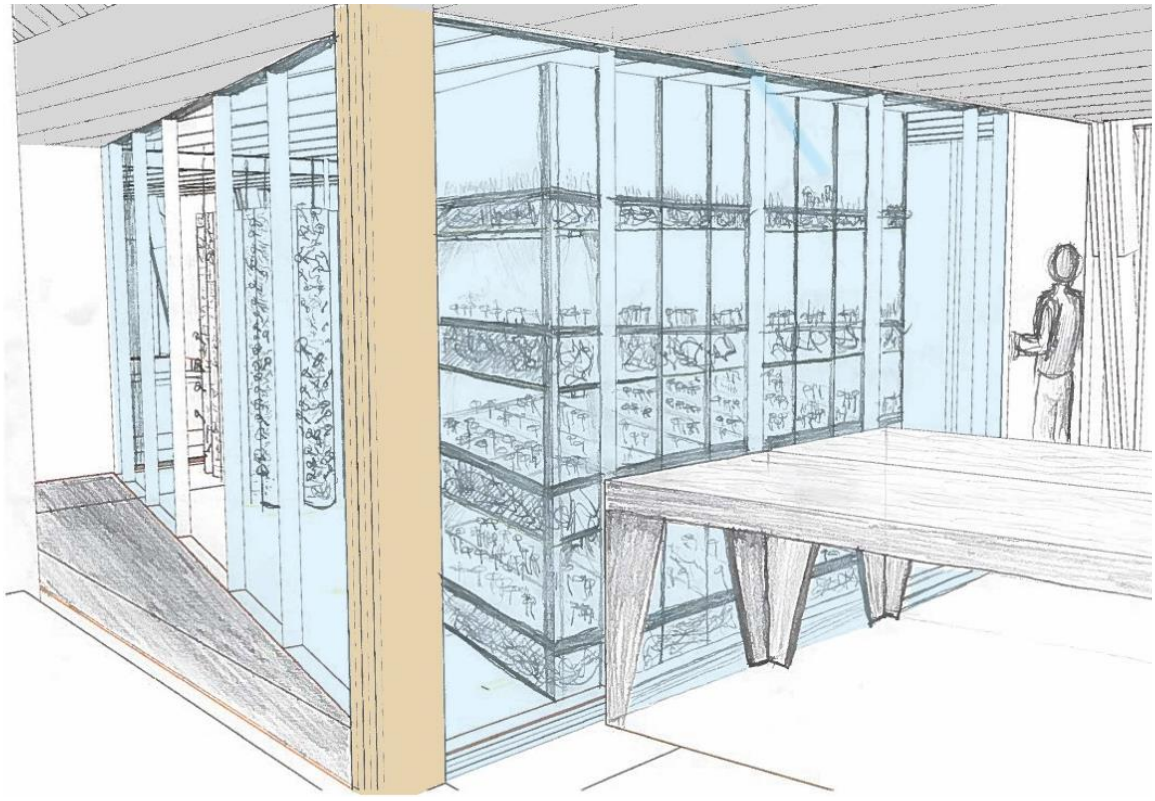


Figure 51 Mushroom farm

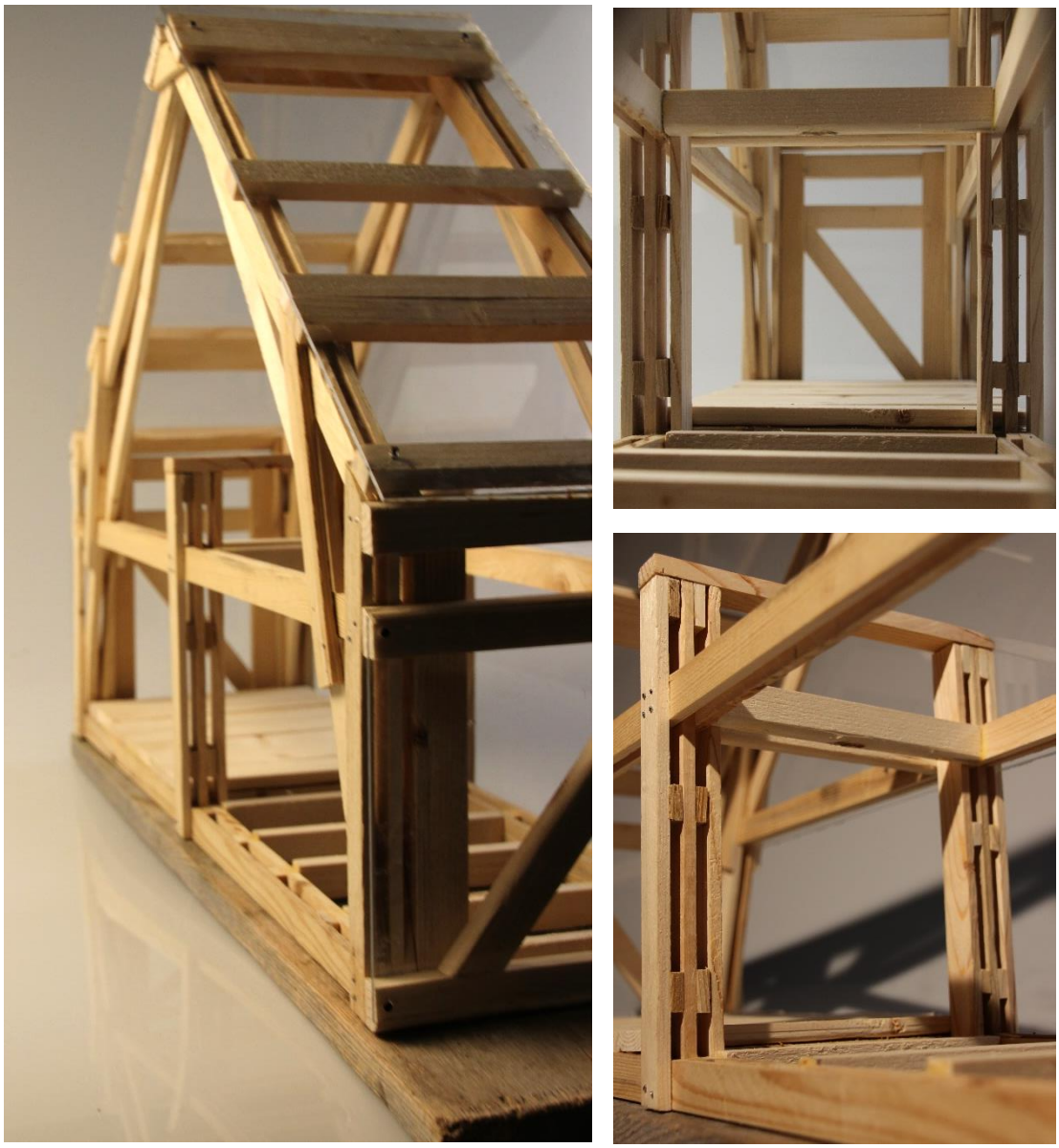


Figure 52 Indoor Greenhouse Artifact

4.3.1 Indoor Greenhouse Artifact

The artifact, I have created to represent my thesis is a hand-crafted indoor greenhouse. The base of the artifact is constructed out of a salvaged pine board from Grassridge. This board of pine represents the old pine forest which once existed on the site and then was turned into the pine boards on the original U-shaped barn. The structure of the artifact reflects the tradition of the vernacular barn construction of additive framing in the surrounding gambrel barns. The artifacts structural material is made out of salvaged spruce lumber spacers from the local building centre in Brant County, which reflects the traditional ideal of using what is at hand from the local resources to build and consist of reused material. The cladding of the greenhouse box is glazed with acrylic to allow the sun to enter the interior of the artifact to let plants grow. The openings at the top of the short walls allow for ventilation of north to south wind and access to carry the greenhouse box easily. The interior contains removable planters which are accessed from either side for adding the soil, native seedlings, vegetable seeds, watering the plants and adding soil. Once the seedlings have grown to an appropriate size, they will be planted outside at Grassridge Farmstead.

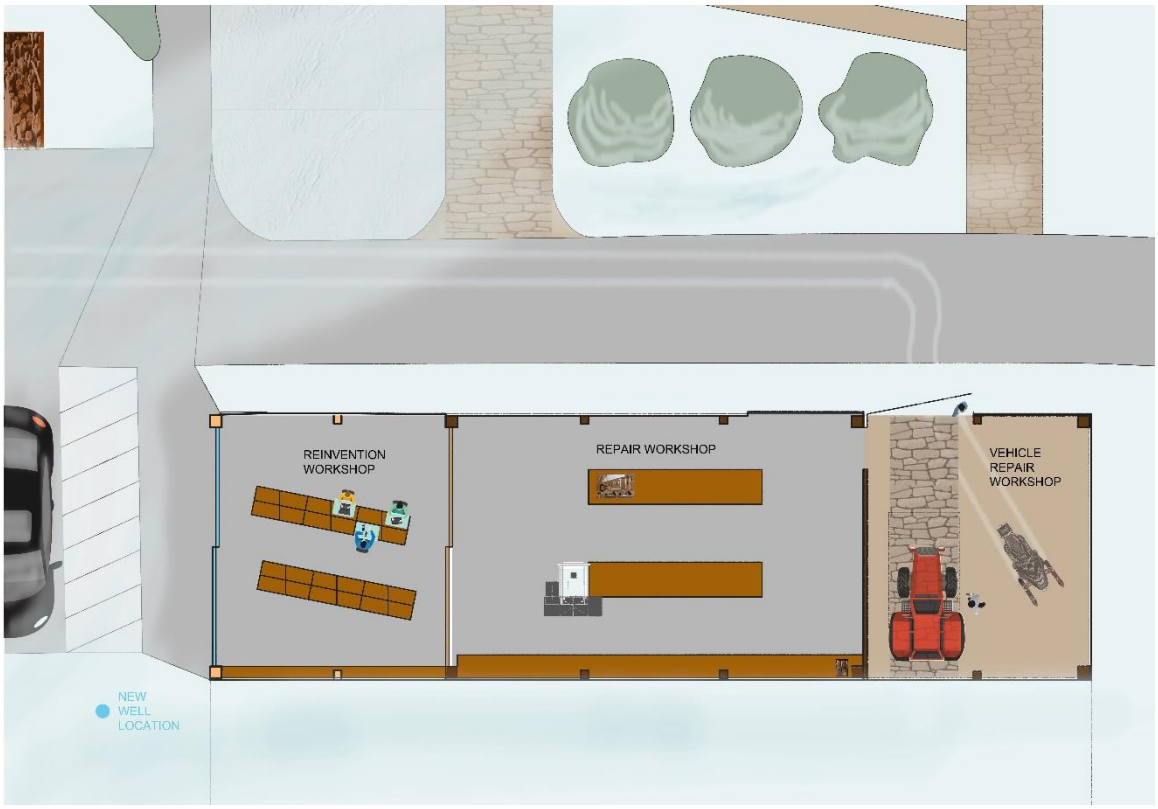


Figure 53 Workshop floor plan

Figure 54 Workshop section

4.4 Repair and Reinvention Workshop

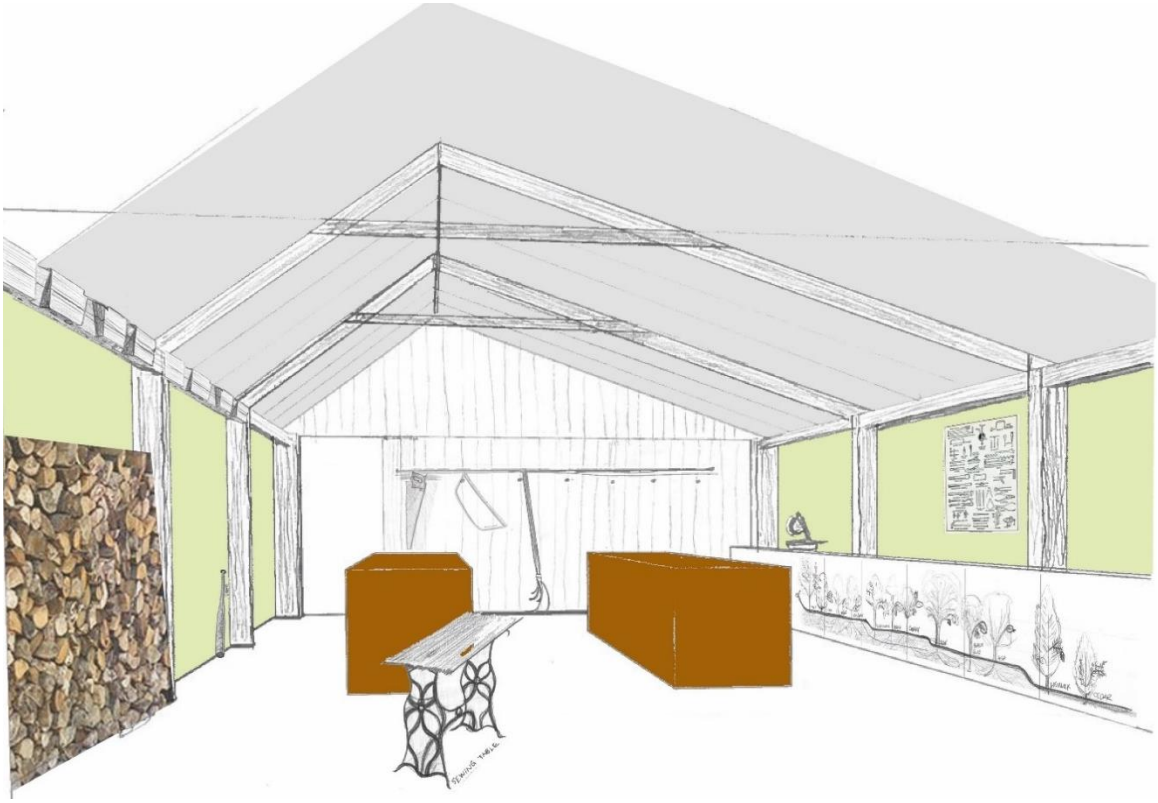


Figure 55 Repair Workshop

The shortest existing building on the site is the drive shed which was once used to store vehicles. It is situated in the transportation and making zone of the farmstead, adjacent to the south agricultural field. The transformation of the drive shed happens through acknowledging the abandonment of the farmstead and becoming a place where repair and reinvention can occur through learning by making.

Thus, the old drive shed would be converted to be a workshop. A place to transfer knowledge from individuals to the cooperative. The cover of the workshop maintains the materiality of the building with salvaged barn boards for cladding and a metal roof. The east section of the workshop would be converted into the repair shop for the machines of the site. The centre section of the workshop would be built upon the material culture of the site to repair artifacts and to learn how to repair the farmhouse. The addition on the workshop is to be a place for reinvention of the artifact. When the original purpose and heritage does not exist in the collective memory anymore, it is reinvented.

5.0 Conclusion: Restorative Principles for Abandoned Farmsteads

This design thesis explored the reimagined relation between agriculture and architecture to create rural agritecture from the knowledge of rural – vernacular – architecture to the broader discipline of rural design and the placemaking of a farmstead. Particularly, the abandoned farmsteads in Brant County can be revived through restorative principles which intuitively transformed from rural observation, analysis, placemaking synthesis and a collection of personal experiences when designing Grassridge farmstead. This design solution for Grassridge transformed from an abandoned farmstead into a cooperative community farmstead. It is a multi-programmatic place with public event space for agritourism and private space for the cooperative agriculture production, each of which embraces social-cultural interaction. Thus, on Grassridge, the landscape design, farmhouse, ag barn and workshop ameliorate architecture and agriculture to reflect a rural design discipline and placemaking of the farmstead reimagined for the communities.

The restorative principles – addressing land, people and building – can be translated from the Grassridge cooperative farmstead to a micro-scale project, similar to the Indoor Greenhouse Artifact. These principles are synthetized in Figure 56. The possibilities for a small-scale local enterprise would have an intimate team build greenhouse artifacts where agricultural seedlings grow inside the artifacts to be planted on abandoned farmsteads. Whereas, at a regional scale of Brant County other abandoned farmsteads could have their own cooperative farmstead reimagined by the expanded collaborators of agritecture disciplines linking to Grassridge cooperative farmstead. Furthermore, the restorative principles can be adapted to regenerate other abandoned sites of agritecture use, even in urban areas of Brantford, or other Canadian contexts.

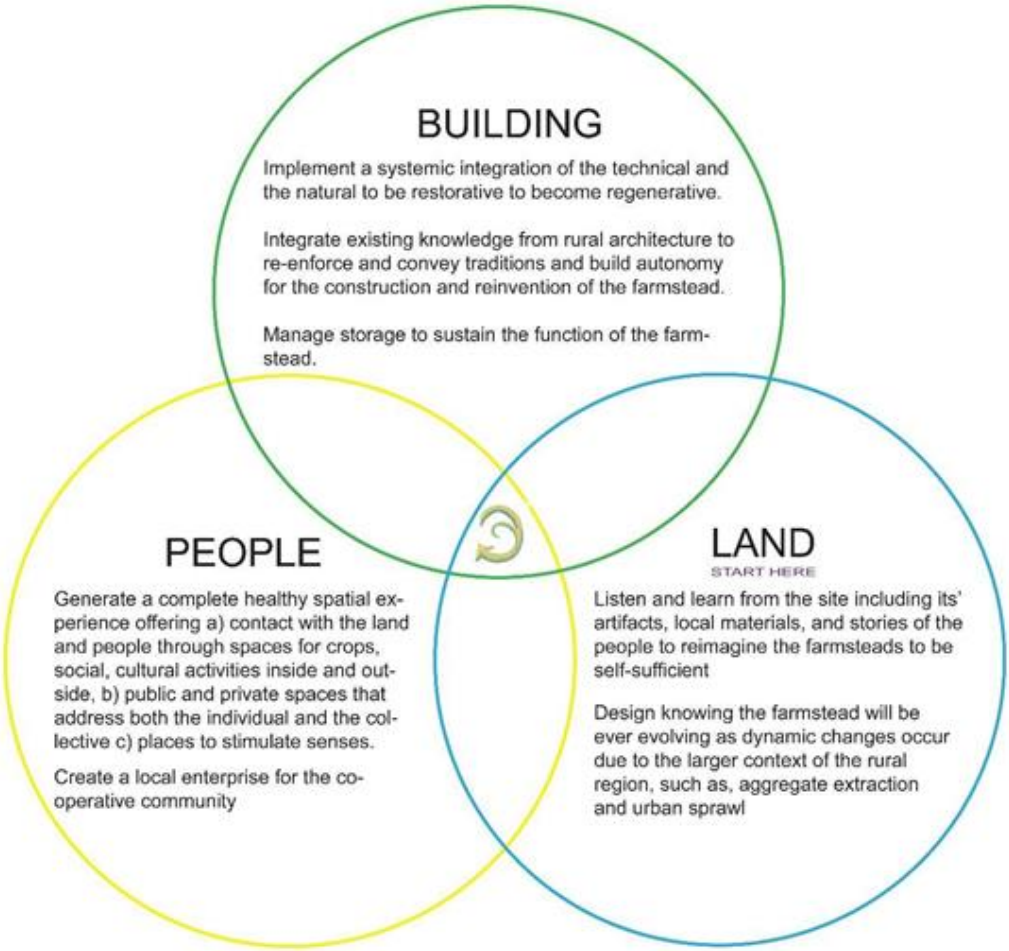


Figure 56 Restorative principles for abandoned farmsteads

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